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The Birdmen's Perch

We were looking through some of our mail the other night when the thought struck us to take a census. Believe it or not, the last 200 letters included some 39 states, the District of Columbia, Hawaii, Ontario, British Columbia, Saskatchewan, Quebec, England, and Cuba with the long distance honors divided between J. A. O'Brien of New Delhi, India and Jack Millar of Melbourne, Australia, who live exactly 8,550 and 11,500 miles from here, respectively. *Gentlemen and scholars all!*

MAJOR AL WILLIAMS, alias "Tattered Wing-Tips,"
Mgr. Gulf Aviation Products, Gulf Bldg., Pittsburgh, Pa.

A MARK OF PROGRESS

Headline flights—or at least most of 'em—are fine things. They serve indispensably to make flying a part of people's everyday conversation. And to hasten the day when it will become part of everybody's life.

But once in a while we mutter a little into our beard because some vital happening has not the news quality it should. For instance, we feel that the whole world should know that Pennsylvania-Central Airlines recently received the first permission from the CAA to operate their 550 H. P. Wasp engines 700 hours between major overhauls!

To our mind, that's news! It's a joint tribute to PCA's operation and maintenance procedure, to Pratt and Whitney who made the engines, and to Gulf whose aviation gasoline and patented Alchlor process Gulf Airline Oil—the commercial twin of Gulfpride—is used in every PCA plane.

It is this unique Alchlor process—used in addition to conventional methods—that digs down far deeper into the 100% Pure Pennsylvania . . . gouges out up to 20% more motor-gumming dirt and sludge. And which, in the first year, PCA used Gulf products, substantially cut their oil costs.

MENTAL GYMNASTICS

This month we have two head-scratchers, one easy, one a little harder.

No. 1—A mechanic reaches into a dark locker to get a pair of socks. There are in the locker 25 pairs of red, 25 pairs of white, and 25 pairs of blue socks all

jumbled up. How many socks does he have to pull out to make sure he has two that match?

No. 2—Take as a premise, first, that all trees have one or more leaves, and, second, that there are more trees in the world than there are leaves on any one tree. Does it follow that any two of all the trees must have the same number of leaves? Can you prove it one way or the other?

(Don't lie awake nights wondering if your answers are right. We'll be glad to mail you the official solutions. Just send your answers to T.W.T. to be checked.)

THIS MONTH'S WHOPPER

Dear Major:

A couple of years ago in Knox County, we were having a terrible drought. Hadn't seen any rain for a coon's age.

On one of those days that'd singe the hair off'n a dog's back, I decided to go to town for a quart of ice cream. On the way, I had to cross Pope Creek—a nice sized stream that's always had plenty of water.

As I was driving across the creek the darn bridge collapsed. And down I fell to the creek bottom.

Well, sir, I was slamming it through the gears trying to get out when the blame buggy ran out of gas. Luckily I had a pint of Gulf Aviation Gas under the seat that I used for a fly spray on picnics.

I poured the G.A.G. in the tank and stepped on the starter—you know, Major, that ark went down the creek like a bat out of the hot place, throwing water 70 miles in every direction.

It did such a good job of throwing water that nary a drop was left in the creek but the crops were saved from drought.

Robert Cowles

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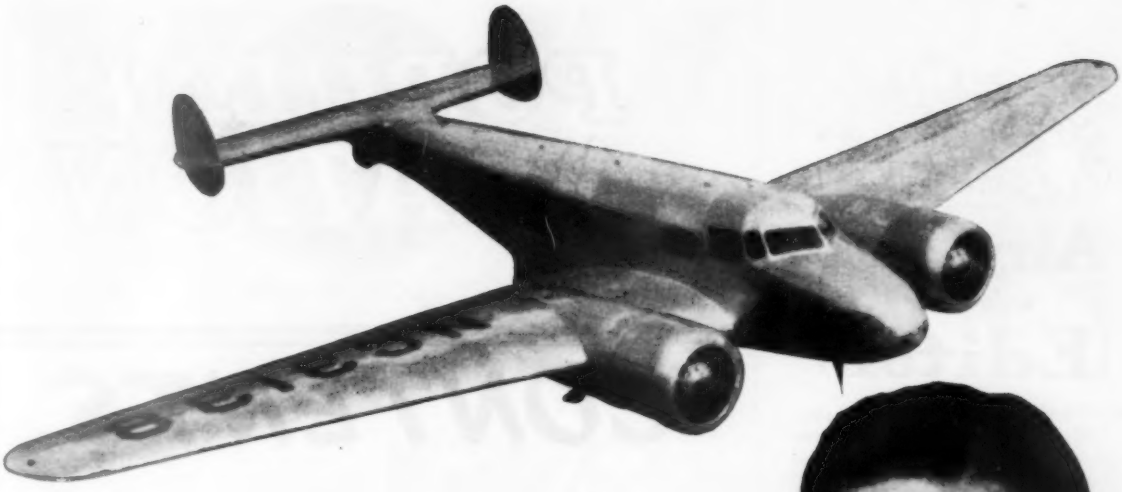

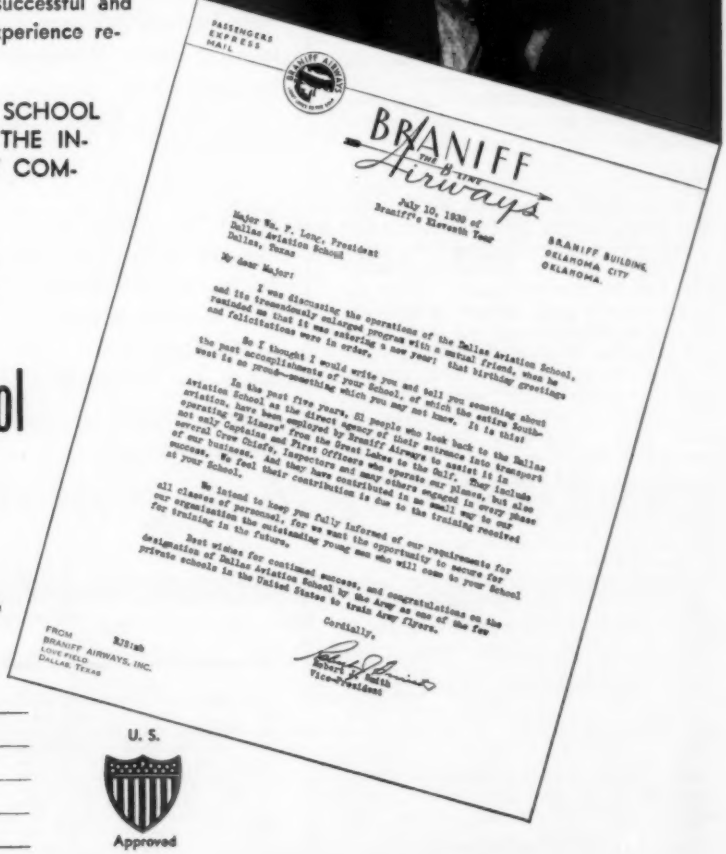
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Major Wm. F. Long, President
Dallas Aviation School
Dallas, Texas
My dear Major:
I was discussing the operations of the Dallas Aviation School,
and its tremendously enlarged program with a mutual friend, when he
remarked as that it was entering a new year! that birthday greetings
and felicitations were in order.
So I thought I would write you and tell you something about
the past accomplishments of your School, of which the entire South-
west is so proud—something which you may not know. It is this!
In the past five years, 81 people who look back to the Dallas
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aviation, have been employed by Braniff Airways to assist in its
operating "B Liners" from the Great Lakes to the Gulf. They include
not only Captains and First Officers who operate our planes, but also
several Crew Chiefs, Inspectors and many others engaged in every phase
of our business. And they have contributed in no small way to our
success. We feel their contribution is due to the training received
at your School.
We intend to keep you fully informed of our requirements for
all classes of personnel, for we want the opportunity to secure for
our organization the outstanding young man who will come to your School
for training in the future.
Best wishes for continued success, and congratulations on the
designation of Dallas Aviation School by the Army as one of the few
private schools in the United States to train Army flyers.
Cordially,
Robert F. Smith
Vice-President
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* * *

SPEAKING of cross-country jaunts, we had another nice one not long ago in a new Stinson "105." Naturally, we were curious about the new little ship's capabilities, so we tried her out en route. The built-in slots do what's claimed for them; there is good control at 40 m.p.h. The cabin appointments are well worth commending. Most amazing thing about the ship, though, is its startling forward visibility—something all other lightplane manufacturers had better look into, and very soon. And we'll like the "105" even more once they get a 90 h.p. engine in the nose; she's a mite sluggish on the take-off with a full load. But that's easily remedied and should not keep the average pilot from admiring the ship for its many advantages.

* * *

A FRIEND of ours relayed this on his return from a European visit. During his visit to Italy he was taken out to Guidonia, the Italians' big "air city." Our friend, while being shown around, was introduced to a couple of pilots whom they found all wrapped up in a copy of guess what—PA! They were reading "Anti-Aircraft Failed in Spain" by Frank Hadesbeck in the July issue. After being introduced to our friend they

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WHY Lindbergh CAME HOME

Never before has the reason for Lindy's return to the United States been printed. Here is the inside story.

European aviation conditions were described by Lindbergh at this meeting of the NACA. Standing behind Lindbergh (sixth from left) is J. F. Victory, NACA secretary

By

DREW PEARSON

and

ROBERT S. ALLEN

Authors of Washington Merry-Go-Round

THERE are two big questions in the minds of American pilots and the public regarding Charles A. Lindbergh and his return to the United States: Why, after becoming a voluntary exile, did he return to the country which made him? And how has he behaved since he returned; is he the same old shy, taciturn, press-hating Lindbergh, or have the intervening years in Europe made him over?

Lindbergh has rubbed shoulders with all sorts of people since he has been back in the United States—Army officers, Congressmen, even photographers and gentlemen of the press; and from these contacts over a period of months the answer to those questions gradually has leaked out.

The immediate inspiration for Lindbergh's return to the United States after practically announcing that he never wanted to set foot again on American soil was John F. Victory, secretary of the National Advisory Committee for Aeronautics, who wrote Lindy in England, urging that he attend the spring meetings of the Committee. In the back of Victory's mind, though he has never said so, was the hope that Lindbergh could give a publicity punch to the efforts which the NACA were making to get more money from Congress for aviation research, particularly a $10,000,000 technical and research base at Sunnyvale, California.

Also Victory knew, though he did not mention it to Lindbergh, that the flying colonel's appointment as a member of the NACA was likely to lapse at the end of 1939 if he attended no meetings.

It was typical of Lindbergh that he did not reply to Victory's letter. In fact, Victory had no idea whether he had accepted his invitation until he read the news in the papers.

Undoubtedly there were important considerations in Lindbergh's mind other than the Victory letter prompting his return to this country. Friends who talked with him in London last winter found him quite aware of his growing unpopularity in the United States. Discussing this with George Rublee, one of the oldest and closest friends of his late father-in-law, Dwight Morrow. Lindbergh said that one town in Long Island would not even permit his wife's book to be sold there because of dislike of him.

But while Lindbergh was aware of and somewhat worried over his unpopularity he planned to do nothing about it, and none of the friends who saw him frequently in Europe ever suggested that

(*Continued on page* 62)

Here is Lindbergh in an Army P-36 during his recent inspection tour of military aviation in the U. S.

Lindbergh amazed photographers by agreeably posing with Sergt. James Tate, an old flying buddy.

French factories are turning out these Morane fighters five a day and are prepared to step up production to 20 a day.

FRANCE WILL BE READY!

By JOHN C. A. WATKINS

The author, just returned from Europe, presents a revealing insight into France's bogged-down air force. The outlook for the future is bright.

THE ability of the French air force to assume its share of the task of repulsing invading Nazi bombers has been one of the gravest problems of the higher commands of France and Great Britain since Europe began maneuvering into position for war.

The French army of the air has been, in fact, an extremely doubtful asset to the two democracies and its known lack of strength last September undoubtedly was a major contribution toward their capitulation to Hitler. Certainly Great Britain's air force was no mighty weapon at that time, but that of France was laughable.

Some of these conditions and why they came about, I described to readers of this magazine some months ago in an article called "Can the Allies Whip Hitler's Air Force?" My conclusion, based upon information from expert and thoroughly reliable sources in this country, was that they could. It was hedged in, however, with reservations, "ifs" and "buts."

A short time ago I flew to France aboard Pan American Airways' flying boat *Atlantic Clipper*, on a preview of the passenger service which the airline since has inaugurated. I did not return to the United States immediately but, in company with Devon Francis, aviation editor of the Associated Press, remained in Europe long enough to make a brief study of conditions in the air defense programs of both France and Great Britain—particularly the former, for which I had more time. We found, I believe, the major reason why those

Here is French military air might on display at a show. Ship is a LeO bomber.

This is the factory at Bougenais. Experts now speak highly of modern French military aircraft. These pursuit ships are equipped with rapid-fire cannon.

countries have suddenly stiffened in their attitude toward Hitler.

We found, in fact, the change in France so apparent that it was startling. There is none of the despair which we were told existed a year ago, not only in the mind of the man on the street but among the officers of the air arm itself. Today there is no attitude of helplessness, no spirit of defeatism.

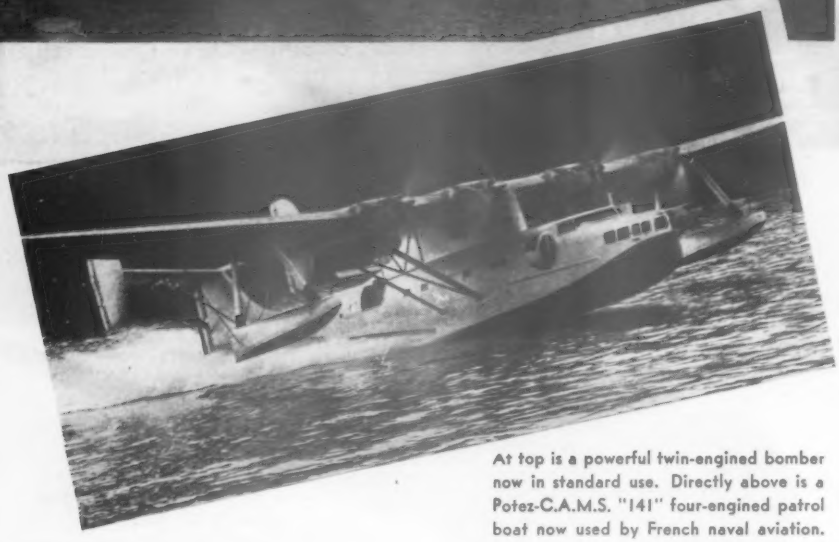
When we visited the enormous buildings of the Air Ministry in Paris—and the administrative branch of the air army alone has more office space than the entire United States Army has in Washington—we were particularly impressed with the almost tangible atmosphere of quiet confidence which was reflected by the administrative officers as they talked to us or proceeded through the halls about their duties.

Particularly, we thought, they have confidence in Guy La Chambre, the extremely able young man who succeeded Pierre Cot as air minister a year ago last April and has, we found, created order out of the wildest confusion in aeronautics in that country. We found that they have confidence in the performance of their military aircraft, confidence in La Chambre's highly successful personnel training program, and, most important of all, confidence in the production program which got under way full blast early this year.

From the young sailor who guards the Air Ministry gates with rifle and fixed bayonet, to the most distinguished and bemedalled generals with whom we talked, all were confident that France and Great Britain today are ready to

One of several French fighter types is this Bloch "151". It is equipped with cannon and now is in quantity production.

In these buildings are housed the auxiliary service offices of the French Air Ministry. The administrative branch alone has more office space than has the entire United States Army in Washington.



At top is a powerful twin-engined bomber now in standard use. Directly above is a Potez-C.A.M.S. "141" four-engined patrol boat now used by French naval aviation.

Another popular French bomber is this Amiot "340", designed for long range high speed operations. It is powered by two 1,100 h.p. engines, can fly 310 m.p.h.

The building below is the French air force engineering school and museum. Here training is going full speed in an effort to overcome remaining weaknesses.

meet any aerial challenge that Germany may decide to offer. And it is La Chambre, every one of them asserted, who has put France into position to meet its obligation to its ally.

More than one officer told us that a year ago France was nearly helpless in the air. They waited in fear, from hour to hour, for the drone of German bombers sweeping over the republic. The air force, as everyone now knows, had little equipment; what they had was inferior, the program of research and development was confused and lagging and aircraft production, in the quantity one might expect from a nation arming for what was thought to be immediate hostilities, was virtually nonexistent.

Pierre Cot does not appear to have been an inspired administrator, to say the least, but it is equally true that he was handicapped by an inept socialist government riding off, like Don Quixote, in all directions at once. La Chambre, on the other hand, had the backing of the powerful Daladier government, but at the same time he had enormous energy, great executive ability, and the will to do a good job. No sooner had he taken office than he evolved and rushed into being "Plan Five," which called for a first-line force of 2,500 airplanes, backed by an adequate reserve.

The best indication to us that this plan has been successful was the extraordinary frankness with which we were greeted by La Chambre and his staff. We were told, in effect:

"We have no secrets. We'll tell you anything you want to know. If you wish to see our factories, you may see them. If you want to look at our latest aircraft, we'll see that you get to look at them. If you doubt our production figures, you may check them yourselves."

Col. Robert Le Petit, chief of the Air Ministry's press section, told us that Plan Five called for a production of 200 ships per month, from all the aircraft factories combined, by late fall. This figure was reached, he said, shortly before we arrived in Paris—six months ahead of schedule. From another, infallible source, we learned that actual production had exceeded 250 per month by early June, and that the rate of increase was so great production by now should have been doubled.

Compared to that of Germany and Italy, or even England, this rate seems pretty poor, especially when you consider that the French were pioneers in the air and that France had been laboring for several years to arm against the Nazis. On the other hand, it does indicate that France is rapidly pulling itself out of the aeronautical morass in which it was bogged down so appallingly when war seemed inevitable last fall.

The performance figures which Colonel Le Petit gave us indicate also that France has in production military aircraft which closely rival the best production types in the United States. On the drawing boards, or in experimental status, are even superior types, which indicates that the republic is now keeping abreast of the rest of the world.

We found no reason to question Le

Petit's figures. More impartial sources than the Air Ministry press section gave us information that leads me to believe that he may have been minimizing performance, rather than exaggerating it. And, once back on this side of the Atlantic, I was given further information that makes me feel he may very well have been guilty of an understatement.

To us, one of the most significant features of the French program was that production has been arranged on a potential, rather than an actual basis. That is to say that the factories are tooled, died and manned to quadruple production immediately in the event of an emergency, rather than turning out hundreds of airplanes which are unnecessary in peacetime and rapidly become obsolete. This, of course, is similar to the program which our own Army Air Corps would like to have in operation in the United States.

One of the French factories, for instance, was turning out five Morane "406" fighters a day when we were there, but was equipped to step up production to 20 ships daily immediately upon the opening of hostilities. This particular plant is owned by the government and is located in the western part of the republic.

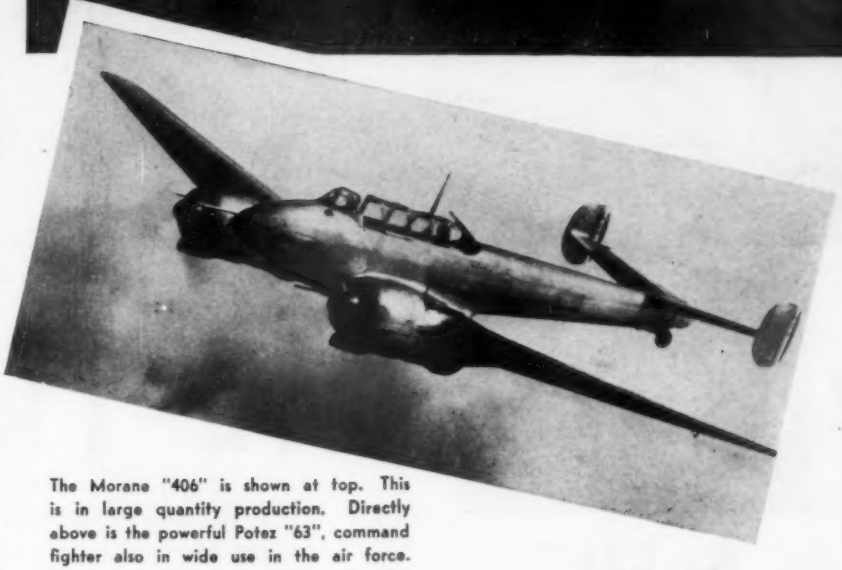
Bombers of the type which Americans have laughed at in the past, with what appeared to be bay windows jutting out into the slip stream, and pursuit planes of queer appearance and bristling with all sorts of peculiar gadgets, no longer have a place in the French air force. The airplanes we saw look good. Their design is clean, and their lines closely follow the latest and best ships now being built here. Significant of the experimental work in areodynamics, we thought, is that their performance often is close to that of similar American ships with larger engines.

The power plant development program is lagging, Le Petit admitted. Because France so far has been incapable of producing the larger engines which modern aerial warfare demands, the country is buying most of its big engines in the United States and Great Britain. Henry Ford, for instance, now is building a factory in the outskirts of Paris where, according to French newspaper announcements during our stay, he will build Rolls Royce engines under license for the air army.

The personnel training program seems to be progressing as well and as successfully as the aircraft production program. Last year, for instance, 22,000 pilots and mechanics were trained, bringing the total to date to 77,000, and a great increase in "production" is expected this year. Like everything else, this phase of the program is coordinated with all the other phases.

France now has six entirely government-owned plants producing aircraft and one turning out engines, while 20 private aircraft and engine factories are working under the direction of the air ministry, in a supervised program. The factories are well dispersed—scattered

(*Continued on page* 84)



The Morane "406" is shown at top. This is in large quantity production. Directly above is the powerful Potez "63", command fighter also in wide use in the air force.

Below is the French Air Ministry proper. Here the able Air Minister, Guy La Chambre, conceived and put into operation "Plan Five" calling for 2,500 aircraft and reserves.

Climbing away from San Francisco, the China-bound clipper sets a course for Honolulu, 2,400 miles away. The American flag is for inquisitive Jap warplanes.

"I FLY THE TRANS-P

By CAPT. R. H. McGLOHN

with Howard Waldorf

It's a fascinating job, this flying of the giant clipper ships. But soaring to Hawaii and China is bound to be. Captain McGlohn takes you to the Orient with him.

MAYBE you have heard such a statement before but, honestly I have the most interesting job in the world. I am captain of one of the big 74-passenger Boeing clippers on Pan American's 9,000 mile run across the Pacific Ocean to China.

Come on aboard, if you have time, and fly with me to Hong Kong and I will try to show you what makes the job so interesting. Please excuse me if I seem to overdo the personal pronoun, but the "I" refers to the position rather than myself individually. My duties are typical of the other Pan American captains in the services which are carrying the American flag of commerce to the Orient, Europe and Central and South America.

Let's start our flight with the actual assignment. The orders are posted by the operations department.

"Flight 311 (that's the number of Pacific crossings we've made since the inauguration of service in November, 1935, but it doesn't include the many trail-blazing flights) San Francisco to Hong Kong via Honolulu, Midway, Wake, Guam, Manila and Macao. *Honolulu Clipper* (Boeing). Depart from Treasure Island 4 p. m. Wednesday. Captain R. H. McGlohn, commanding."

The orders then go on to list the other nine members of the crew. Sounds like a lot—10 of us—but she's a big ship, the biggest commercial aircraft in the world and there's plenty to do. Here's the way we line up for duty: I am captain, and master of the ship. I usually handle the flight controls on the take-offs and landings, stand a regular watch at them during the trip, make all final decisions concerning the flight and correlate the functions of the other crew members.

The first officer is the executive officer of the ship. He acts as second in command and relieves me of much of the responsibility of detail, such as supervising the loading and relaying my orders to other members of the crew. He is the only one who can share the "bridge watch" with me.

The second officer, also a pilot, acts as navigator, supplying the data as to heading, altitude and speed that keeps us on the selected air track. He also keeps the all-important ship's log.

The third officer is a junior pilot. He stands a regular watch as second pilot, relieving the first officer.

The first and second flight engineer officers are responsible for the proper functioning of the four engines, including the calculation of power and fuel required to fly under the plan set by the captain and detailed by the navigator.

The first and second radio officers maintain constant communication with the ground stations and furnish radio bearings to the navigator.

The first and second stewards are responsible for preparing and serving the food and caring for the needs of the passengers and others on board.

All of us are highly trained for our duties and most crews have been together on many Pacific crossings. In the air we stand a two hour watch and are off one hour out of every three.

The next step in preparing for our flight is taken Monday, two days before the departure, when the crew reports to the base for a physical examination. We get a very thorough going over. Even such a trifling thing as a common cold is sufficient reason for disqualification. However, all of us keep in top physical condition so the examination is little cause for worry. We take nine of them a year—two for the Civil Aeronautics Authority, the company annual and six pre-departures.

"One bell! My crew and I march down the platform into the ship and immediately go to our stations. Shortly afterward two bells sound and passengers come aboard."

-PACIFIC CLIPPERS"

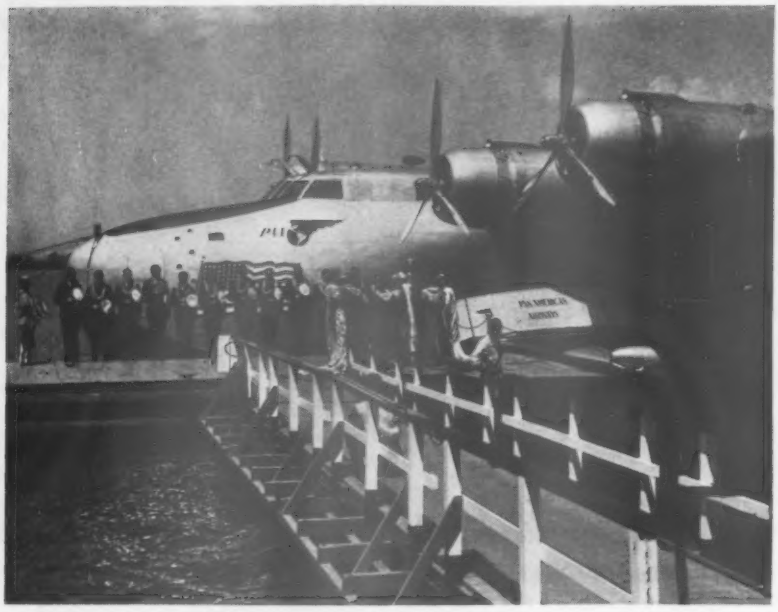
The physical examination is all for Monday, unless we have some radio, engineering or instrument flying problems to finish. No matter how many years of flying we have behind us, we keep on studying all the time.

The next day we and the ship to be flown are put through a stiff predeparture test flight. Every man and piece of machinery is checked and double checked for performance. We check gas and oil consumption under the various power outputs and propeller settings, calibrate the instruments, the radio and everything on board. We do considerable instrument flying and make several instrument approaches to the landing area.

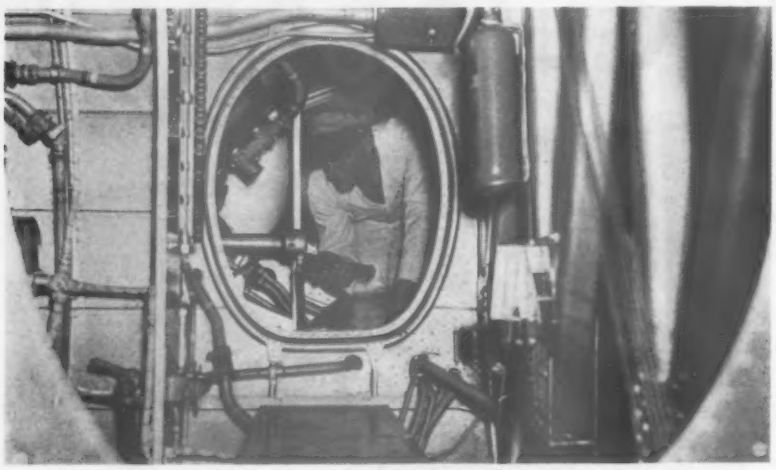
We finish up the test with fire and abandon-ship drills to make sure every man is familiar with his duties in an emergency. In the abandon-ship drill we land and as quickly as possible inflate and launch two big life rafts. Each man has a duty to perform. The navigator picks up the emergency navigation equipment that will be needed and the ship's log, the radio man the signal devices and battery charger, the stewards the food and water, etc. Sometimes we hold these drills in total darkness to insure that each man knows his job thoroughly.

We usually get back to the base early

"Once aboard, we slip into our seats at the controls (upper right). There is ample room for pilots, navigator, radio operators and flight engineers."



The author and his crew are feted at Honolulu. The stop at Hawaii is overnight. Next stop will be Midway Island. Then Wake, Guam, Manila and China.



The new Boeing clippers are so large the flight engineers can climb out into the wings and check or even repair engines in flight. Passageway is inside ship's wing.

in the afternoon. I turn the ship over to the maintenance department to be cleaned and fueled with the minimum quantity set up for the trip. The operations department figures this minimum on the number of hours predicted for the flight under the expected conditions, plus five hours fuel reserve. I check the amount. If there are any adjustments or repairs to be made to the ship, the orders are given at this time. That is all for the day.

The first leg of the flight to China is a long one—2,085 nautical miles to Honolulu (approximately 2,400 land miles), which means 16 hours or more of flying, so I have my own system of preparing myself. I try to stay up as long as I can the night before. I read until my eyes won't stay open any longer. Then I crawl into bed and in that way get a sound sleep that lasts until about 11 the next morning. I wake up refreshed and ready for the assignment.

I meet my crew at the base two hours before departure time. That gives us plenty of time for conferences on the weather and the loading of the ship. This loading is extremely important, as upon it hinges the performance of the ship. The center of gravity must be held within very close limits. I notify the first officer what center of gravity is desired and he loads the ship accordingly. Every person who goes aboard and every item—the mail and express cargoes, the food—all are carefully weighed and placed. Our permitted maximum gross weight is 82,500 pounds and we must not exceed it. Today we are taking 26 passengers, 3,000 pounds of express and 1,590 pounds of mail.

The meteorological department hands me a weather map compiled from last minute radio reports from ships at sea, our own stations, Alaska and the Aleutian Islands, Asia and the South Pacific. Every line of possible approach of a storm is covered. Also I get a chart of all the ocean vessels along the course, both as to where they are now and where they will be when we pass over, their call letters and the hours their radio operators are on watch. This

(*Continued from page* 60)

Pan American now alternates China flights between Martin (left) and Boeing ships.

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SPITFIRES - LITERALLY

These British "Spitfire" fighters are appropriately named. Standard equipment includes eight machine guns.

NOW YOU CAN FLY

By
FRED HUNTER

It was a fairly amazing feat just a few years ago. Now people can—and are—doing it every day. It's as easy as riding the train to work.

HE might have been Mr. John Q. Public himself or just plain Joe Doakes, but he had money in his pocket, a dreamy look in his eyes and an abiding urge to go places and see things in a hurry. He walked into an airline ticket office, strode briskly up to the ticket counter, cleared his throat and said:

"I want to fly around the world. How much will it cost?'

He found the ticket clerk ready for him.

"Yes, sir," said the clerk, as he reached deftly under the counter for maps, schedules, rates and such other pertinent information as might be helpful in working out a round-the-world air trip. "The ticket is $1,910.95."

The inquirer blinked, not because of the price which is comparable to first-class steamer rates, but because the ticket clerk had the cost figure at the tip of his tongue.

The fact was not surprising, however, because new and strange names, like Basra and Karachi, Jodphur and Rangoon and Jask and dozens of others have been written into the air traffic lexicon and world tariffs and schedules have become component parts of the traffic job with the airlines whose coast-to-coast routes are the connecting links in this country for the clipper services across the Atlantic and the Pacific.

This California couple celebrated 25th anniversary by flying around the world.

AROUND THE WORLD

Magic propellers have made the fairy story of the enchanted carpet come true and the famous Taj Mahal in India, the great pyramids in Egypt, the romantic locale of Sinbad the Sailor in Bagdad, the Biblical setting where Peter raised Dorcas from the dead in Lydda and dozens of other places that most persons only dream about have taken their places on the airlines' vacation maps along with such familiar American playgrounds as Yellowstone National Park, Yosemite, Boulder Dam, San Francisco Bay and Hollywood.

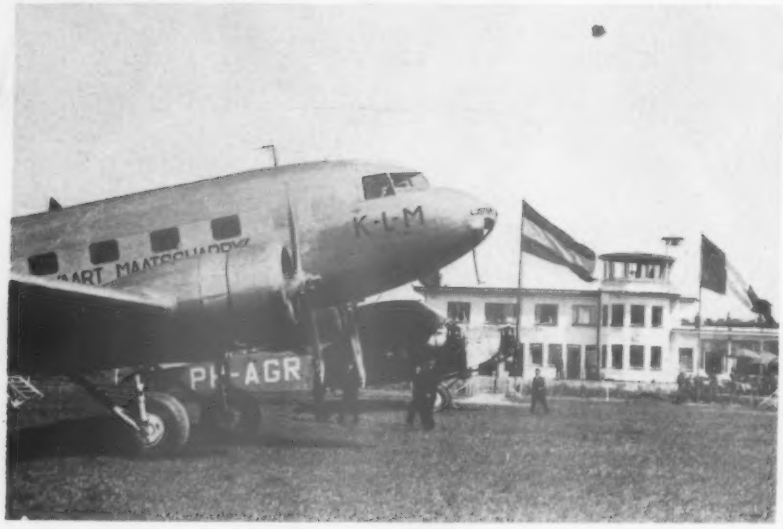
Through the sorcery of man's mechanical genius, Jules Verne's fabulous "Around the World in 80 Days" has been transformed into an actuality of around the world in 16 days by air, just one day more than a two weeks' vacation period, if you choose to travel that fast. And for the passenger, it's all very simple, and very convenient and easily arranged.

Let's take Mr. John Q. Public or plain Joe Doakes, as you may prefer, and follow his progress. Let's assume he is starting his journey from Chicago. His $1,910.95 ticket, of course, is for a direct flight around the world. Side-trips galore are available for him if he has the time and cares to make them. He may take time out to make an aerial tour of half a dozen countries in Europe, dash down into South Africa, slip over to Australia, pop in on the East Indies, stop off for a cup of tea in Ceylon or even indulge in a bit of de luxe galivanting around the mystic countries of the Far East by the simple expedient of having his ticket adjusted and his passport visaed. But our particular Chicago traveler has no time to spare; he wants the $1,910.95 ticket that will take him around the world with the fastest connections.

Prior to departure, there is the matter of baggage to consider. In the United States, 40 pounds is the baggage allowance, but the airlines allow 55 pounds to passengers connecting either with the transatlantic or transpacific clippers to coincide with a higher allowance made by the oceanic service. On the European lines, however, the limit is 44 pounds so this becomes the allowance for around-the-world passengers who want to avoid excess charges.

What to wear is never so perplexing a problem to the masculine traveler as it is to the lady who may sit across the aisle from him, but experienced travelers of both sexes have found that a little judicious planning makes it easily possible to keep an ample wardrobe within the 44-pound limit. The extent of a round-the-world traveler's wardrobe, as a matter of fact, is determined principally by how much formality he wishes to observe, and to some extent the route he follows and the time of year he makes the trip. The traveler choosing to fly the Atlantic by the Great Circle route via Newfoundland and Ireland to England.

This is the route the 'round-the-world traveler might follow. The price is $1,910.95, it takes 16 days and the total mileage is 24,609. American-built airliners predominate.



The air traveler can fly from Amsterdam to Siam aboard American-built airliners. Above is a Douglas airliner of KLM. Many foreign airlines use American aircraft.

If the 'round-the-world flyer chooses, he may fly to Australia from Europe aboard British flying boats like that above. The British line follows a southerly route.

Even on the remotest Pacific islands the finest hotel accommodations are available. This is at Midway Island where the famed gooney birds fearlessly roam the island.

for instance, would have to prepare for greater climatic changes than the traveler flying the lower North Atlantic via the Azores and Portugal to Marseilles. A fairly heavy suit and top coat might be very comfortable in Botwood, Newfoundland, but they hardly would be in keeping with the temperatures that prevail in Cairo, Egypt, and Calcutta, India.

Having packed his bags, our round-the-world traveler is on his way. From Chicago his airliner whisks him, in three hours and 55 minutes, to New York where the clipper awaits to carry him across the Atlantic to Marseilles or, if he chooses, the Great Circle route, to Southampton, England. The departure of the clipper from its base at Port Washington is a colorful and impressive ceremony that quickens the pulse and foretells the story of glorious adventures to come. But the excitement soon wears off as the shore line recedes into the western horizon and the great four-engined, 72-passenger Boeing flying boat levels off just above a lower cloud level in the firm, smooth air at 8,000 feet. There are a few lingering glances backward then books and magazines appear, a bridge game is organized, the stewards prepare to serve mid-afternoon refreshments and the passengers settle themselves for the first leg of the journey over the Atlantic. In another hour or so dinner will be served, a full course meal as complete in appointments as though it were being served in a first-class hotel. And then, a little later, berths will be made up for the night. Is this the road to romance, the trail of true adventure? Or is it simply another routine airplane flight, like, for instance, a short commuter trip between Chicago and Cleveland? It depends upon the imagination of the passenger.

The clipper's first stop is at Horta, in the Azores. An hour—no more—for Horta is mainly a refueling stop. Then the clipper continues its flight to Lisbon, Portugal. Lisbon is the first overnight stop on the round-the-world flight. It is necessary because Pan American has not yet received permission to fly over Spain and night landing facilities are not available at Marseilles. Later, when these details are corrected, the flight to Marseilles will be uninterrupted.

In Lisbon, the around-the-world flyer receives his first taste of getting up with the sun, for the clipper departs for Marseilles at 7 a. m. Pan American, however, really is quite considerate. The 7 a. m. departure is but a forerunner of what is to come.

In Marseilles—another overnight stop—the round-the-world traveler leaves Pan American and transfers to one of the European lines. From Marseilles, the traveler has the choice of three airlines. Imperial Airways of Great Britain operates the direct line to Hong Kong, but K.L.M. of Holland and Air France of France go to Bangkok, Siam, where direct connections may be made to Hong Kong. The flying schedules of all three lines are practically the same and the traveler's choice is dictated principally by the points of interest he may wish to see. (Imperial had just suspended pas-

senger operations temporarily as this went to press.—Ed.)

Flying the straight route (for the sake of this article, despite the suspended service) the Imperial Airways' flying boat leaves Marseilles at 10:10 a. m. for Athens. This flying boat is a four-engined, 22 passenger craft with a speed of 200 m.p.h. Aboard the ship our traveler from the United States finds two innovations —at least, they are new to him. One is an additional member of the crew—the flight clerk—and the other is a bar. The flight clerk's duties are similar to those of a purser on an ocean liner. He is responsible for the ship's papers and mail loads in addition to superintending the comfort of the passengers and the safe keeping of their baggage, no light task when so many international boundaries are to be crossed. The purpose of the bar needs no further explanation.

But whereas the world air traveler may find his progress at the bar unimpeded, he will find his smoking proclivities distinctly restricted. No smoking is the rule except in those craft equipped with a special room for smoking. It's more than a rule of the company; it's the law.

Camera fans, who are accustomed to shooting everything in sight from the windows of airliners in the United States, no doubt will be shocked and perhaps upset when the flight clerk advises them they'll have to forego the anticipated pleasure of taking a few shots of the Seven Hills of Rome or the dome of St. Peter's as they fly over Italy's capital city. As a matter of fact, they won't have any cameras to shoot with because their photographic equipment will be taken from them and carried in sealed bags over prohibited areas in France, Italy and Greece.

The flying boat arrives in Athens at 7:50 p. m. for an overnight stop. There are no lighted airways on the eastern hemisphere and from Marseilles to Hong Kong all of the flying is by daylight. Passengers spend the night either in a hotel or a rest house provided by the airline and the cost of this and the meals supplied is included in the air fare. Meals aboard the airliners or at intermediate stops on the ground also are included in the air fare as they are in the United States.

Early to bed is strongly suggested, for along about 3:30 in the morning our round-the-world traveler finds himself hustled out of the covers to catch the landplane for Basra at 4:30 a. m. This is one of the most interesting flights for the round-the-world traveler because it is on this leg of the journey that he has three meals on three continents in the same day. Breakfast is in the European city of Athens, lunch in Alexandria in Egypt and dinner in Basra on the Persian Gulf in Asia. The plane arrives in Basra at 7:20 p. m.

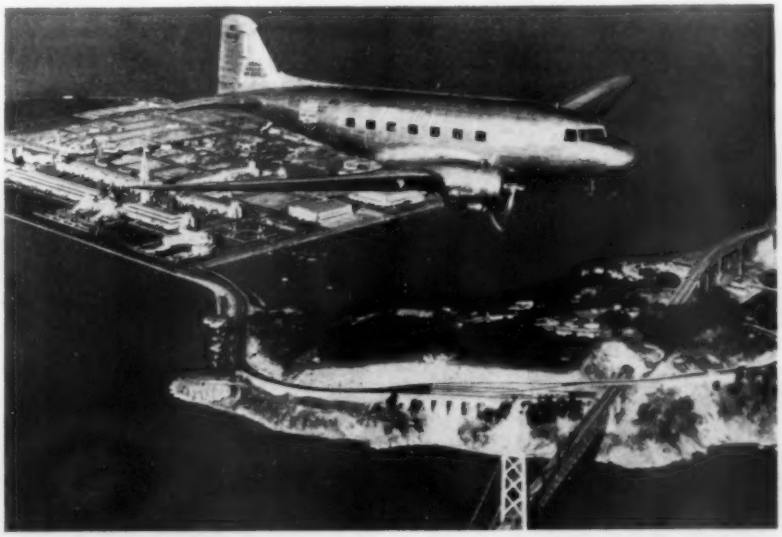
Once more the round-the-world traveler is aroused from his slumbers before the sun is up. Five a. m. is the departure hour from Basra for Karachi, the next overnight stop on the flight to the Orient—and history repeats itself at Karachi with another 5 a. m. departure, this time for Calcutta. Here the departure hour is 5:30 a. m., as it is at the next overnight stop, Bangkok. Siam.

The air passenger is well cared for, no matter what corner of the globe he happens to be in. Above, porters check in baggage upon a clipper's arrival at a Pacific island.

The final leg of the journey on Imperial Airways is the flight from Bangkok to Hong Kong, and in this British possession on the China coast the traveler gets a chance to catch up on all the sleep he may have lost in Athens, Basra, Karachi, Calcutta and Bangkok. There is a three-day lapse between the arrival of the Imperial Airways plane and the departure of the transpacific clipper for Manila, Honolulu and San Francisco. There are no daily schedules on the airlines running from Europe to the Orient and the best connection is made by arriving in Hong Kong on Monday for departure on the clipper Thursday.

Back under the protection of the Stars and Stripes is the round-the-world traveler as he boards the clipper in Hong Kong. There are overnight stops in Manila, Guam, Wake, Midway and Honolulu in the six-day flight across the Pacific before the Golden Gate looms up out of the east to greet the traveler returning to his native soil. Over the Golden Gate bridge, Treasure Island, the Oakland Bay bridge and the huge clipper floats smoothly down to its mooring at Alameda. At the Oakland airport a sleeper plane awaits. An overnight flight and a restful sleep punctuated, perhaps, by fleeting dreams of

(*Continued on page* 81)



Back in the United States, the 'round-the-world passenger completes his journey by flying a domestic American airline back to his home city. Above is Treasure Island.

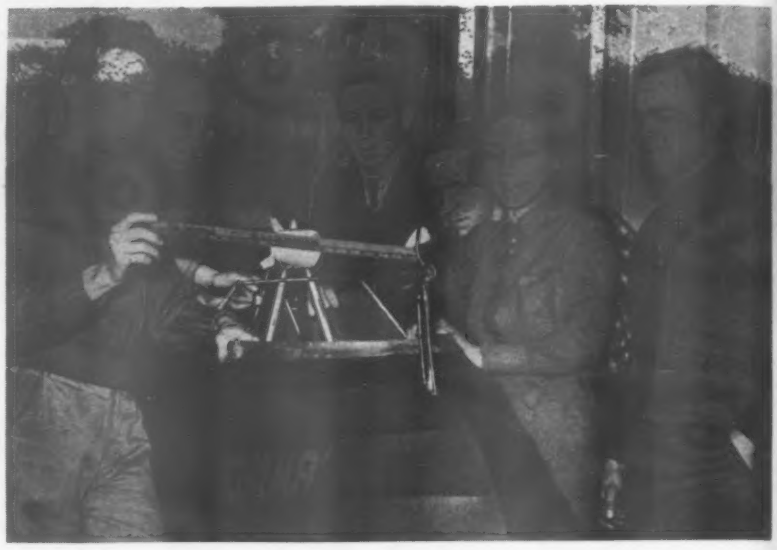
GLIDING - A FRANKFORT INDUSTRY

by ROBERT W. BROWN

IF you were to place your finger on a map of the state of Michigan and run it up along the west shore it wouldn't be long before you'd hit a small town named Frankfort. On the map it is hardly more than a fly speck, but in the world of aviation that little dot has begun to grow. Today it has assumed the proportions of a minor Detroit. Tomorrow, who knows? For in Frankfort there has been established the first incorporated soaring school and motorless plane manufacturing company in the United States—and indications are that this baby industry is going places.

The basis for that statement lies in two indisputable facts. First, the school has been awarded the first contract ever issued by the United States Government to train prospective pilots in soaring as a basis for power place work. Second, the first American Open Soaring meet was held at Frankfort last year. It saw one of the biggest turnouts of gliding pilots this country has ever known and there is every indication that this year, when the second annual is held from August 26 to September 5, it may establish a record for entrants in open soaring competitions and mark Frankfort as the equal if not the superior of the big National Championships at Elmira, New York.

Those are the facts, but what if you were interested in learning to soar as part of your preliminary training as a power plane pilot—or just for the thrill of gliding and sweeping silently up through the clouds? What would you see and learn when you got to Frankfort? What would happen to you if you were one of the 12 student pilots selected from the college training program by the Civil Aeronautics Authority for soaring training? POPULAR AVIATION asked me to find out the answers and tell them to you, so here they are.



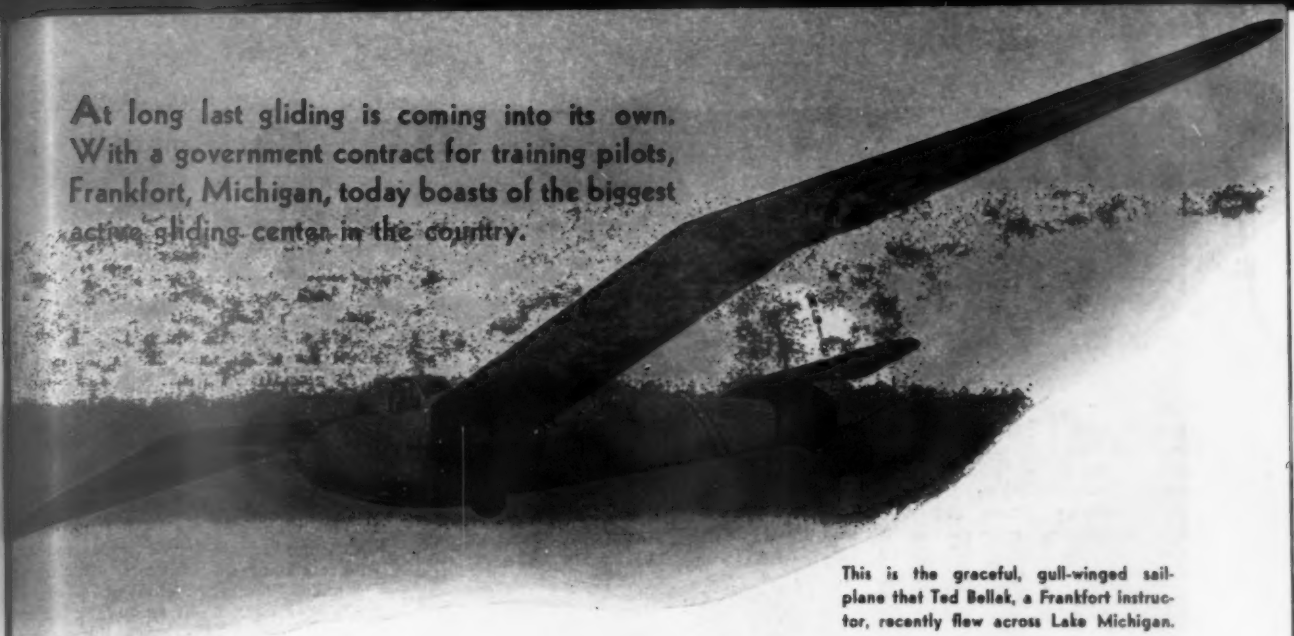
Both men and women attend Frankfort's gliding school. Here some of the school's students pose with Stan Corcoran (left) while he gives them some ground school pointers.

When you first arrived in Frankfort you'd probably think that here was just another little country town with one Main Street and perhaps a slightly prettier location than many other towns of equal size. The town's population varies from around 1,500 in the winter to about 3,000 or 4,000 in the summer. Across the lagoon from the railroad station, and the point where Michigan Route 22 enters the town, one can see at least one of the big Ann Arbor railroad car ferries docked at all times. There are stubby fishing boats at wharves only a few hundred feet from Main Street; a little post office where people come and wait for the daily mails to arrive and be sorted; and right next door to the post office the factory of the Frankfort Sailplane Manufacturing Company.

Probably either Stan Corcoran or Ted Bellak—the two young instructors at the school and both Silver C pilots—would be at the train to greet you. Soon they'd

Equipment at the Frankfort school includes two ships; a silver and black Franklin utility glider and a cream and light blue Wolf intermediate sailplane with 48 foot span. Both are one-place.

At long last gliding is coming into its own. With a government contract for training pilots, Frankfort, Michigan, today boasts of the biggest active gliding center in the country.



This is the graceful, gull-winged sailplane that Ted Bellak, a Frankfort instructor, recently flew across Lake Michigan.

be showing you around the factory, introducing you at the little airport that lies just over the hill to the east, or pointing out the great sand dunes that, in conjunction with the prevailing northeast and southwest winds, make Frankfort the spot that offers more soaring days throughout the year than any other site on record. By night you will have been established in some private home—for the courses offered are resident courses with both room and board included in the tuition; met the other three or four students of your class and have gotten a flying start for the course.

This year the school is offering a choice of two courses. Each will prepare the applicant for his A, B and C soaring licenses, the only difference lying in the length of the instruction period and the amount of work covered in each subject. The course given to all private students duplicates the material the Government students will receive.

The courses, as is usual in most flying schools, are divided into two branches: ground school work and actual flying, for both Bellak and Corcoran feel that for a soaring pilot to reach top rating he must have a thorough understanding of the principles that enable his ship to fly, the construction of his ship and its capabilities and a sound knowledge of the action of air currents. Consequently although the student flies for some time each day he also spends time in the lecture room listening to, analyzing and absorbing technical material that will be valuable to him later. If he wishes to avail himself of the opportunity he may work at any time during non-school hours on the construction of a plane in the factory.

From the Frankfort sailplane factory there came last June a new soaring plane, a two-place trainer. It was designed by Stan Corcoran and built during the winter by Corcoran, Bellak and others of the Frankfort crew. It is a dream to look at, and is typical of the ships the factory is producing, but although the test flights have been successful and the ship has come up to more than the builders' expectations it has been decided not to use it in training until the licensing is complete.

As a result, the equipment at the school for student training, now includes two ships; a trim silver and black Franklin utility glider with a 36-foot wing span, and a German-built cream and light blue Wolf intermediate sailplane with a 48-foot wing span. Both are single place jobs.

Training at the school follows a definite pattern. After a short preliminary talk on the principles of soaring, the class is taken to the flying field where the gliders are waiting. One is selected, placed with its nose to the wind and you're told to climb in. If there's a 10-mile wind which is sufficient to allow the pilot to keep the wings parallel to the ground without moving—and there usually is a good breeze blowing in from across the lake—

Training at the school follows a definite pattern. The class is taken to the field and taught to fly by gradual steps. Here a student takes off on a short practice flight across the airport.

At left is Ted Bellak, famed young soaring pilot and co-operator of the Frankfort gliding school. Here a student is seeing the construction of a typical sailplane.

the first stages of instruction, learning how to "balance the wings" commences. If you've never flown or handled a glider before, it will probably take nearly the first hour to master the trick. First one wing tip will drop, and then the other will touch the ground, but gradually you'll get the feel of the ship.

Then the second stage commences. A car is driven onto the field and a tow rope about 100 feet long stretched from your glider to the car. This is when the instructor comes over, pats you encouragingly on the shoulder and says "Now this is really easy. We're going to drive the car down the runway, and you're going to roll right along behind. All you have to do is keep your wings balanced and, by using your rudder, keep the ship directly in back of the car."

It's as easy as that, but when the car starts off and goes 10 miles an hour everything seems to go wrong. A wing will drop and while you're frantically trying to remember which way to move the stick you'll completely forget about the rudder. By the time you reach the end of the 3,600 foot runway it seems as if you'll never be able to coordinate the controls, but that's where the genius of Ted Bellak and Stan Corcoran come in. They both seem to have the patience of Job and while you're still trying to catch your breath they are beside you, explaining your mistakes, telling you what to do next time, encouraging you, and saying "Come on, let's try it again."

Back and forth across the airport you go, and by the end of the first hour you'll find that you're able to make the run with the wing tip touching the ground every now and then instead of dragging 30 per cent of the time.

By the third hour of instruction even the slowest member of the class usually has mastered the problem of coordination. At one moment things still seem to be all wrong, you're consciously thinking through each movement of the stick and rudder and the next moment you don't think of it and the control is natural.

Now you're about ready to make your first flight, but meanwhile there has been ground work going on. In addition to having a rudimentary knowledge of how to handle the ship you've learned something of the history of gliding. You've learned to distinguish primary, utility and high performance sailplanes, and know the important features of each. A barograph is no longer a mystery to you and meteorology is a science that now has a definite application to your flying. Factory work and study have shown you how a glider is built and, consequently have given you a better idea of the treatment a ship can stand.

Now you are ready to fly. Once again the ship is brought out on the runway and put with her nose to the wind. You climb into the pilot's seat; this time it seems you're more completely alone than ever before. Corcoran comes up. "Watch me," he says, "I'll wave my arm when you've reached sufficient speed to take off."

The tow car starts down the field. The ship moves faster than ever before. It grows buoyant as the speed increases. Then Corcoran is signalling. Back comes the stick and the ship literally leaps into the air. You seem to be going up, up, farther and farther, Then you remember to pull the tow rope release—and you are flying.

For the rest of the hour that's the program. You go up and you come down. Before long you are learning how to judge your distances and level off for a good landing. You fly higher on each flight. Possibly you only reached a height of five feet on your first, but by the end of the hour you are hopping ten or fifteen feet. In the next two hours you will continue to go up to greater heights—as

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Pilots, Planes Up

THERE were 26,144 pilots and 11,160 aircraft holding active certificates on July 1, 1939, according to a report to POPULAR AVIATION by the Civil Aeronautics Authority. This was an increase of more than 6,000 pilots and of more than 1,400 aircraft since July 1, 1938, when the totals were 20,076 pilots and 9,732 aircraft. Further, it was an increase of more than 3,100 pilots and 1,100 aircraft in the six-month period since January 1, 1939, when there were 22,983 certificated pilots and 10,000 certificated aircraft. In the private classification alone, during the last six months, there has been an increase of 971 pilots of which number 228 were college students who received their certificates after training under the experimental phase of the CAA vocational flight training program inaugurated in 13 schools during the second semester of the 1938-1939 school year.

The total number of aircraft, certificated and uncertificated of which the CAA had record on July 1, 1939, was 12,210, while this figure on the corresponding day of last year was 11,031. Uncertificated aircraft (bearing identification numbers only) declined during the year from 1,299 to 1,050. In addition, there were 109 certificated glider pilots and 209 gliders, of which 33 were certificated. These were below the totals as of July 1, 1938, when there were 159 certificated glider pilots and 230 gliders, of which 44 held Federal airworthiness certificates.

Airline Library

TO supplement its innovation of establishing a four-year apprentice school in which the mechanics are paid while learning, American Airlines has established a library of technical books, manuals, and periodicals available to its personnel. All of the subjects needed for a thorough and working knowledge of mechanical practices in airline operation are contained in the library and, by utilizing its facilities, mechanics and apprentices now are able to keep abreast of the industry and to acquaint themselves with the knowledge necessary to pass the tests periodically demanded by American.

Atlantic Mail

FIGURES on the number of letters carried on the first regularly scheduled round trip flight across the Atlantic by a Pan American clipper were given POPULAR AVIATION recently by the Post Office Department. On the eastbound flight between New York and Marseilles, France, 134,291 letters were carried; 54,142 pieces of mail were delivered to New York at the end of the westbound flight.

I'm Through With Closed-Course Racing!

Here is the author with his famed Marcoux-Bromberg racer. He has quit racing to take up a career of airline flying for Canadian-Colonial.

by EARL ORTMAN

as told to Dick Kirschbaum

Another famous racing pilot retires from the field. Here, in an exclusive article, he tells his reason for quitting.

CLOSED course racing to me is a closed book. No, it's not what you think. I haven't had a case of cold feet; haven't lost my nerve. It's not that I feel I ought to quit while I still have all my arms and legs. I admit swinging a short-winged, heavy-nosed race job around a set of pylons is no job for a safety-first advocate, but I didn't quit because of the danger involved.

I love closed-course racing. Not for the thrill involved, but because I honestly think closed-course racing is the best proving ground and test laboratory of modern aviation ever devised. I could go on for days and days extolling the merits of this sport, which is actually much more than a sport.

It is truly the laboratory of aviation. On the closed courses of the nation have been developed the greatest advances in commercial aviation. Without the cranky little racing crates we would probably have but a fragment of the information now at hand regarding streamlining. We wouldn't know about engine performance, cowling, landing gears and fuel performance, cooling, lubrication, flutter, wing and control surface stall characteristics, propeller design data and a dictionary full of other vitally important things.

Closed-course racing has taken its toll of lives, to be sure, but so has every other form of experimental work! Lives were lost when the pioneers of old tried to sail the seas; recently many were lost in submarine experimentation. Lives were lost when our own pioneers trekked their way across the uncharted continent via the covered wagons. How about the days of the iron horse, when railroads were in their infancy? Weren't lives lost? You can't go ahead without encountering obstacles and conquest of the skies is a lot tougher than just meandering around old terra firma.

I have been called America's No. 2 racing pilot, and I guess that's about right. I've won a few air races but I've finished second in so many it began to seem to be a habit—a bad one. Most of the time I've been runner-up to good old Roscoe Turner who, brilliant blue uniform, diamond wings and all, is honestly America's (or any other nation's) Number One race pilot and no kidding! I finished second in 1936 to Michel Detroyat; to Rudy Kling in 1937 and to Frank Fuller the same year in the Bendix. And, as you know, to Roscoe last year. "Often a bridesmaid but never a bride" seems to have been my history around the closed courses of America. Although even my worst enemies will admit I always gave Roscoe or anybody else a hot ride for his money! At least, I tried all the way.

I bring this up to get back to my favorite subject (I almost said obsession) which is the good closed-course racing has done modern aviation. There are many opponents to the sport. They say it is purely for the thrill-hungry; a catch-penny stunt to fill the grandstands. Those who watch it with bated breath hope against hope they may see a tragedy, is their contention.

Maybe so; but I believe these are in the minority. And they can't do any harm by hoping, either for or against. The anti-pylon racing group point dour fingers at the deaths of Rudy Kling and Frank Haines at Miami, among others. I have no argument to offer against this; I refer back to my contention that the road of progress in transportation is fraught with casualties. I will say, however, that recent legislation by our Professional Racing Pilots Association is doing much to halt a recurrence of such tragedies. "Sunday pilots" are out, so far as we are concerned, in the major events.

Even with all this, these tragedies have contributed vitally valuable information towards the furtherance of safety in flying of all types. More careful planning of the course and more stringent regulation of the pilots is doing much to eliminate death due to avoidable accidents.

Most racing planes cannot be flown in the manner of the old time ships. They are, at least in most cases, designed for ultimate speed. Stability, pilot comfort, vision, yes even safety, being secondary considerations. Naturally, a craft of such background must be expected to have a few vague notions; to be cranky at times and stubborn at best. This makes the handling more precise and cautious than that of a commercial job.

Steve ("Oshkosh") Wittman, one of the leading race pilots of the country, flies according to what is laughingly referred to among other pilots as the "saw" method. In other words, when he lost a race because the other ship was speedier Steve would whip out a saw and hack off a few inches from his wing tips. This increased his speed for a while and certainly reduced his stability. You've got to be a good pilot to handle a job like that. But I wouldn't worry about Steve; he is tops in his line when it comes to flying the jitterbugs.

After a few years of this sort of trimming down, he found, though, that he'd cut off more than he could chew. He brought the ship to a lowered efficiency, dropping off speed instead of increasing it, and making it mush rather than zip. Lately he has been working towards increased reliability, although I have had no report on his progress.

We can definitely trace to the little racing craft the important item of increased take-off horsepower ratings for commercial transports. Usages in closed course racing proved excessive manifold pressures could be feasible. Pratt & Whitney profited by my use of one of their engines for a few years of intense racing. They worked it over and then released it, in modification, for commercial use, utilizing the knowledge gained on the proving ground of the closed course. This is practically the same engine used by Jackie Cochran in her green Beechcraft which showed to such good advantage in the 1937 Bendix. The

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I FLY THE FOREST PATROL

by EMMET E. FALL

Fire fighters get their supplies these days from the air. It takes a courageous pilot to fly into the teeth of a raging inferno.

The forest patrol pilot must fly into fires like this to get supplies through.

Below is the author just before taking off on an emergency flight to a fire.

JOE was in bad shape. For four hours he had been milling around in the smoke over Red Cap trying to dump a load of food to a starved ground gang. Now his engine had quit cold on him. Out of gas and over the toughest spot in the Trinity National Forest.

He was right in the middle of a boiling sea of cinder-laden smoke. All landmarks were blotted out by the swirling stuff. For the last 20 minutes he had been on instruments. The altimeter said 10,000 feet. That was bad, in a country full of jagged 9,000-foot-and-more peaks.

Joe rolled down the cabin window and stuck out his snoot. All he got for his attempt to pierce the smoke blanket was a blast of heat from the fire below. He was sitting on a chute, but that was no consolation. Either it would catch fire in the air from the burning embers and drop him like a hot potato or dangle him over the fire until he was done to a turn.

As quick as the engine started that hopeless out-of-gas popping, Joe nosed her down and started swearing. He had a great vocabulary and here was reason to use it. He knew he was in a fix and his brand-new airplane was about to go bust. He let loose a blue streak in the direction of forest fires in general, smoke, trees, himself for ever getting into such a crazy business, and the world in general.

Nine thousand five hundred feet the altimeter said. Then 9,000. Joe swore on.

"Blankety blankety blank. We haven't hit anything yet anyway," he bellowed. For the first time he turned around to look at his observer and helper, who happened to be the village minister doing voluntar duty with the fire patrol. The minister was sitting at the back of the cabin, quiet as a church.

Eight thousand five hundred—8,000. Still a boiling sea of smoke and the air was getting rougher than hell. Seven thousand five hundred. It couldn't be long now because the valley he took off from was 6,500 feet above sea level.

Seven thousand . . . and then all of a sudden—so sudden it stopped Joe's swearing—the smoke swished aside like a curtain being drawn and there right smack in front of him was a little tree-lined clearing. It was too small to land in, but maybe he could save the ship. Joe slipped hell out of her, lined her nose up with two trees and ducked his head. She crackled through the branches, there was a ripping noise as the wing sheared off and then the cabin, with Joe and the minister in it, tumbled into the clearing.

The U. S. Government bought this specially-equipped Stinson for its fire-fighting activities.

For a couple of seconds while the dust was clearing they sat silent. Then Joe started in again with his swearing and as he did he turned to the minister. By this time the minister was on his knees. He looked up at Joe and said meekly:

"I prayed all the way down. I hope it did some good."

Joe thought it over, then replied:

"I don't know whether it did any good, but it's a cinch it didn't do a damned bit of harm."

That's the way with this forest patrol flying, praying may not help but it's a cinch ti won't do any harm. It's the toughest kind of flying and we stick our necks out plenty, but it's nice work.

In the old days flying forest patrol meant just cruising over the area and spotting fires, but now we do all kinds of jobs. Last year when the Pacific Coast was hit by the worst forest fires in 35 years was the first time the fire fighters at the front were fed entirely by food dropped from planes. Each plane took care of 2,500 men. We had five ships flying from dawn to dark. We dropped more than 25 tons of food and supplies. To show how much faster we were, it took the mules from four days to a week to return our chutes.

Since then the science of firefighting has been changed completely and has been geared up to the speed of the planes. Formerly, fire fighters could travel only as fast as the food and supplies which was brought in aboard slow moving pack mules. Now with the airplanes delivering the goods to the front lines, the ground forces are able to travel light and as a result get to the fire much quicker, usually before it has had a chance to get going good.

Already this more widespread use of the airplane has slashed the forest fire toll in the west. Last year the airplanes were credited with playing a major part in saving hundreds of thousands of acres of national forest and recreation area from destruction.

These new flying chores are plenty varied. One minute we are wallowing in the rough air above the smoke blanket spotting "mushrooms" or new fires and the next we are diving down through the blanket to drop a load of food to the fire fighters or some hay and water for their mules. A few minutes later we are flying an injured man to the hospital or rushing an official letter to the nearest airmail box.

For beaucoup excitement there's nothing like dear old northern California when the summer lightning is shooting tongues of flame into the forests and new blazes are starting by the dozens. I've seen as many as 400 fires raging at once! The smoke covered half the coast like a pall. It covered an area 800 miles by 200 miles by 2½ miles thick. The men on the ground were helpless. We had to climb to 18,000 feet to get into the clear to spot "mushrooms." These are the geysers of smoke that show the location of new fires. They shoot as much as a mile above the smoke blanket. It's red hot flying in the stuff. At 11,000 I've seen it so hot it was just like sitting in front of a blast furnace.

We work out of pocket handkerchief fields. Most of them are makeshift runways slashed out of the woods, barely long enough to get off with a load. When we ask for more runway they top the trees on either end and call it an airport expansion program.

Many of the fields are one-shot affairs. The way in is the way out. There is no pouring the coal to her and going around again if we overshoot. One field we have to spiral down into a canyon and pull up over a ridge to get into it. Getting out calls for some of that praying. All of the time we are hanging on a single motor that usually is sadly neglected because at the end of the day we are too tired to give it more attention than a fast once-over.

Here's how a day goes when the lightning has the fire fighters and the flyers on the run (and, incidentally, don't let

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These men look to the airplane to bring them food and, sometimes even save lives.

This is what a forest looks like after a fire was seen too late to be stopped.

The COUNTRY DOCTOR TAKES T

by BETTY L. McKELVEY

Presenting another humane use to which the airplane is being put. This is the story of a modern small-town doctor who has made his airplane all-important.

TRADITIONALLY, the country doctor races the stork in a battered buggy. In practice, he usually travels in a knock-about automobile. One midwestern small-town physician, however, defies both tradition and practice by taking to the air.

Men of medicine have often been transported by air to scenes of disaster, but the number of doctors who regularly land their planes in their patients' "back yards" of a morning is still decidedly limited.

Dr. Daniel E. Dorchester of Sturgeon Bay, Wisconsin, is then—although he would scoff at the idea—something of a modern pioneer. It was merely an accident, he says, that he started to make regular calls on Washington Island patients by plane.

It is amusing, incidentally, that Washington Island should be the testing ground for this most modern of experiments. Although it would be unfair to call the island unprogressive, tourists who visit it from time to time during the summer often call it "quaint." Some of the residents of the self-contained little Icelandic community, a dot of land in Lake Michigan a few miles north of the Door county peninsula, have never been away from their native shores. They are primarily quiet folk, these islanders, whose families have lived on the island for generations. Three churches, four schools, four general stores, two gas stations and the once-a-week movie form the nucleus of recreational and business life of the community.

Stories about the conservative qualities of the islanders are stock gossip in northern Wisconsin.

There was, for example, that man who had never seen a train. Taken to the hospital in Sturgeon Bay for observation, he decided to go to see what a railway engine actually looked like, while in town.

"Well, did you see it? Did you climb up in the cab?" he was asked on his return from the railroad yards.

"No," he answered casually, "I just looked at it from a distance. Tomorrow I'll go back and go up close."

In many ways, the island is primitive. For example, there is no electricity, except for that generated in a few private home plants. In one afternoon, Dr. Dorchester says, he took out nine pairs of tonsils and adenoids. With no electricity, he was unable to employ the usual suction equipment for keeping the throat clear. He never knows what unusual medical or surgical problems will turn up next.

"I was certainly tired at the end of that day," he says cheerfully, in the manner of one who enjoys his work.

Dr. Dorchester, in contrast to the island he serves, is very modern. His interest in flying is probably second only to his absorption in recent developments in medicine and in the work of the small but splendidly equipped hospital with which he is closely associated.

In 1931, when the cheerful, rangy young man took his M.D. degree and started a Sturgeon Bay practice, he probably had no idea that within ten years he would be making calls by plane. He took his first flying lesson in April of 1937, and in the fall of the same year he received his pilot's license (he holds private license No. 39392 today).

One of the founders of the Cherryland chapter of the National Aeronautical Association in Door county, he uses a new Aeronca 65 h.p. *Chief* which flies 90 m.p.h.

The doctor started his regular plane trips to the isolated little island by chance. A few months ago one of his surgical patients, who lives on the island, became very anxious to go home from the hospital.

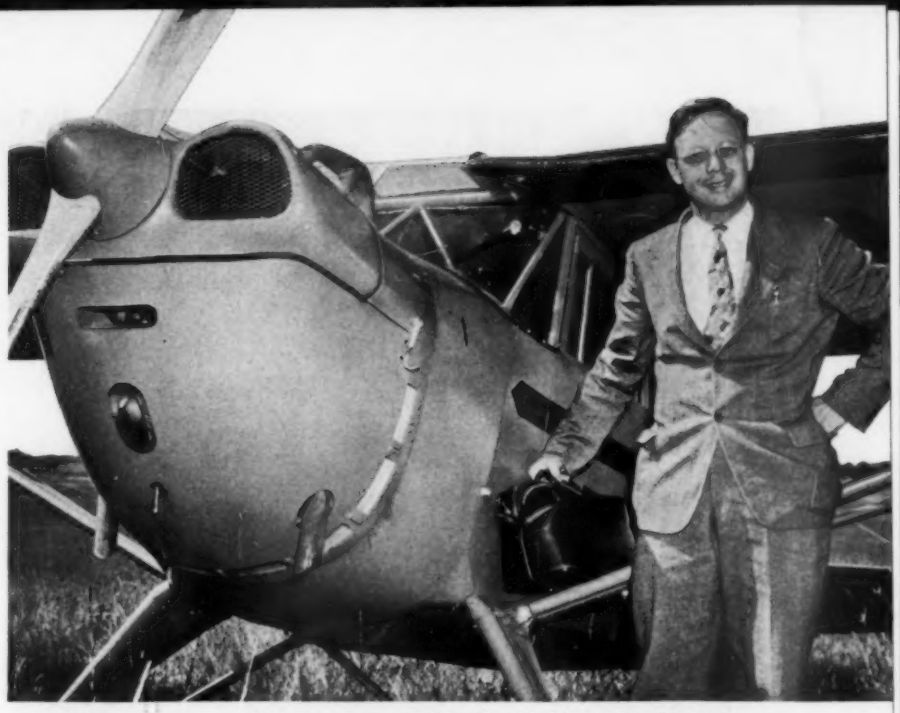
"All right," said the doctor, "go home, if you wish. I like to fly and the island

Below is an aerial view of Washington Island. The circle indicates the little field used by Dr. Dorchester. The islanders recently established it as a regular airport.

If it weren't for his airplane, Dr. Dorchester would have to travel to the island aboard slow-moving ferries. By flying, he has cut traveling time to a mere fraction.

Here is Dr. Dorchester in his "office" in a Washington Island summer resort.

ESTHE AIR



Dr. Dorchester owns a 65 h.p. Aeronca, sometimes flies Washington Island patients to a hospital on the mainland. He is one of the leading private flyers in that area.

is only about 50 miles from here. I'll fly up Thursday, my day off, and fix the dressings."

When Dr. Dorchester arrived for his "air commuting" case, he found not only his patient but several of the man's friends, waiting for him. The island, it developed, for all its 800 permanent and 400 extra summer residents, had no "M.D." They would not let the doctor go until he had promised to come again, on his next "day off." The next Thursday, when his little plane hummed down from the sky, a still larger group awaited him at his "office" at one of the older resorts. Now, many weeks later, the hotel fairly buzzes with activity on that one afternoon each week and Dr. Dorchester can scarcely take care of all the patients who throng the makeshift waiting room, the porch and the unpainted wooden steps.

On one recent—and typical—trip to the island he saw 23 patients and pulled three teeth between 1:30 and 5:30. He never knows what will turn up. He must expect anything and be a man of all work. The most rapid non-airplane journey the doctor ever made to the island was five hours, round trip. Shortly after 9 o'clock one evening he received a call from the island that a ruptured appendix was awaiting his attention. He left Sturgeon Bay at 9:30 by car, met the Coast Guard boat from Plum Island by pre-arrangement at the Newport landing on the east side of the Door county peninsula and arrived at the home of the sick man in one hour and 50 minutes. The trip, made in the dark through a heavy sea and a snowstorm, was difficult. There were no channel lights between the island and mainland and the sea was so heavy that on one occasion the compass turned completely over.

Contrast this, Dr. Dorchester suggests, with a trip he made by plane a few weeks ago. He received a call from the island asking him to hurry over to deliver a baby. Exactly two hours from that time he was back in Sturgeon Bay again, with the trip over and back completed and the baby delivered.

The necessity of speedy transportation in many medical and surgical cases is well-known. Dr. Dorchester points out how important the airplane can be in such a case. Some time ago a boy was accidentally shot on Washington Island. An hour later, after a plane trip, he was on the operating table in Escanaba, Mich. Delay would have caused serious complications, the Escanaba physician in charge stated. "The boy owes his life to the plane," avers Dr. Dorchester firmly.

At least one recent mid-winter island tragedy, he says, could have been avoided had a plane been available. The patient in this case also had a ruptured appendix and, since phone lines were down between the island and Sturgeon Bay, a group of islanders on their own initiative decided to transport the man out by sleigh a quarter of a mile from shore, to a point where the Coast Guard boat from Plum Island could pick him up. "Death's Door," a tricky, current-torn stretch between the island and the mainland, was crossed in a 50-mile gale. At Newport, a sleigh met the exhausted party and, at Ellison Bay, snow plows and an ambulance took over transportation.

The man died shortly after his 11 o'clock arrival in Sturgeon Bay that night. And no wonder, after such a trip.

"That death," says Dr. Dorchester, "was certainly unnecessary. Had word of the illness been sent here and had I had access to a plane the weather that day would have permitted a 1 o'clock take-off from Sturgeon Bay. I would have arrived on the island at 1:30 for an immediate operation."

He is enthusiastic about the possibility of medical service to the island by air during the wintertime and he plans to give such service during the cold months this year. The jolting and shaking of the boat and snow plow method of transporting patients during the winter can be avoided, in many cases, by the use of a plane and it is possible that the doctor is looking forward to the possibility of

This is the resort used by Dr. Dorchester during his flying visits to Washington Island. He can be consulted here every Thursday.

The makeshift office now buzzes with activity once a week. Patients usually throng a waiting room, porch and steps.

Dr. Dorchester already has saved lives through the speedy use of his airplane. Here he bids one of his patients goodbye before taking off for Sturgeon Bay.

regular ambulance plane service in his vicinity in the future. Such a plane would be very useful to the island, especially during the ice crack-up in the spring when planes are nearly the only means of transportation available. The doctor cites a case:

One day a short time ago a call came in from the island late in the afternoon. "A man dove into only a foot of water out here. Better come right away. His neck seems to be broken." A few instruments in his bag, a quick call to the airport, and Dr. Dorchester was on his way. Arriving on the island he found it necessary to transport the patient to the mainland but was unable to do so in the lightplane. So the man was fastened onto an ironing board with weights and braces for a speedboat trip. This would have been an excellent spot for use of an ambulance plane.

It was on this trip that the doctor made his first solo flight in the dark. By the time the patient was on his way, it was about 8:30 and very dark and Dr. Dorchester found himself in a predicament. Faced with the necessity of getting his plane back to the mainland safely and of taking care of his patient on the mainland as well, he phoned his former instructor in Sturgeon Bay.

"I'm flying over from the island. How can you mark the airport there for a landing?" he asked.

The arrangements were made. Two cars were parked on either side of the approach to the runway with their lights on. Two other cars, with lights pointing outward to avoid glare, were placed at the far end of the same runway.

"I took off from the field at the island in pitch dark," he explains, "using a small flashlight from my nose and throat set to watch the instruments. I flew over at about 1,000 feet and made the landing at Sturgeon Bay, with only a few bounces, at 9:15."

The doctor has some choice tales to tell of his own trips to the island and those made by his uncle, Dr. Gustave Egeland, who served the island many years ago. Most of these stories certainly point up the advantages of airplane travel. Dr. Egeland often crossed on the ice, from mainland to island, in early spring, when the condition of the ice was uncertain and when he was forced to jump great cracks, four and five feet across, to save his own life. He crossed the "door" in boats when great waves washed over the battend-down-hatches and froze them down so solidly that it was necessary to chop a hatchway open to permit the physician to leave the boat.

Dr. Dorchester himself recalls one trip he made in a fishing tug two years ago, when the sea was so high he was thrown down a hatchway from a ladder and nearly rolled into the engine machinery.

"The trip was somewhat complicated by a variety of odors," he says reminiscently. "There was the diesel engine smell, to say nothing of the varied perfumes of a smoking wood stove and 100 boxes of fish. Most of the passengers were seasick. A very bad trip." A long one, too, nothing like the brief air jaunts.

The island's regular transportation facility, a ferry boat which makes two round trips a day, may be satisfactory for tourists and permanent residents but for a physician it falls short of necessity. Besides, the ferry in bad weather may land either at Gills Rock (the regular dock) or at Newport on the east shore, some miles away. This element of uncertainty adds to the hazards for the doctor.

Dr. Dorchester is interested in flying not only for its practical connection with his own work, but for its general future in Door county. He has been one of the most active workers in the Cherryland chapter of the National Aeronautical association, in the county, and is its first and present president. The chapter was formed only this year, in February, with a membership of 25. Since that time membership has increased to 71, making it the largest chapter in the state of Wisconsin. Although the county board refused to appropriate money for an airport, the club rented a field of 140 acres.

The airport, it is interesting to note, was made ready in two and a half days for the cherry blossom festival last spring. Members met even in the evening to clear away stones and smooth the landing field. Dr. Dorchester was one of the most enthusiastic workers.

One day he started out for the office but ran out to the airport early in the morning "just to see how things were coming along." He rode a tractor all day.

Washington Island is proud of its flying physician and surgeon. It is an unwritten law that whoever sees the doctor's plane land must go to the airport, which is five miles from nowhere, to take him wherever he wants to go. On a recent trip, it was a small farm truck which came to the rescue.

"Hello!" said the farmer. "I was just going down the road to pick up a pig, but if you and your friend want to hop in I'll take you wherever you want to go first." The only available space was that reserved for the pig. The doctor and his friend took it.

Just last week the Washington Island township bought the airport at a cost to them of nearly $2,000. Few thought the proposal would go through. What was the deciding factor that made those hard-headed and conservative farm folk turn over such a large part of their none-too-large public funds for such a scheme?

"Dr. Dorchester flies," one of them explains it," and he's saved several lives over here during the last few years. We want him to have that airport."

Island folk are anxious to cooperate in the new plans. A woman who owns land adjoining the new airport was at first hesitant about cutting down some trees which were a hazard to planes as they landed. The doctor took her for a ride in the plane, showed her just why the trees were a menace. She agreed to have them cut.

There is nearly always a crowd to greet Dr. Dorchester and to wave goodbye to him as he leaves.

"You'll be back next Thursday, won't you, doctor?" the island folk ask anxiously, as he packs up his kit. A group watches him interestedly as he folds his long legs into the little cockpit, as he warms up the motor of his plane.

The islanders want medical service, of course, but almost as much, it would seem, they enjoy watching for the plane. "It's the day for the doctor to come," they say. "Wonder how the weather is." And they go out and peer at the sky and worry about rough weather.

There may be people on the island who have never left it, who have yet to see their first train. But the doctor comes by plane.

END

ABLE STUDENTS

These Randolph Field trainers were caught by an alert cameraman during formation flight practice.

The passenger agent must be ever watchful that each passenger is correctly ticketed before boarding plane.

Short of doing the actual flying, the passenger agent assumes all responsibility for his passengers and keeps them satisfied.

Man of a Thousand Headaches

By EDWARD J. DOHERTY

Edward J. Doherty

YOU made your reservation, bought your ticket, and boarded the plane feeling that it's quite a wonderful thing, flying. Your mind dwelt for a while on the romance of taking off into the air and the glamour of the people who make their living by flying. The chances are one in ten you never for a minute wondered who was the organizer of your flight; whose work made it possible for 20 people to get together with a bag or two of mail and soar across the country on a regular schedule.

Let's forget the romance of flying for a while and take a look at the individual flight. Let's proceed from the abstract to the specific. We'll see who makes it possible for you to settle comfortably in a flying lounge chair and feel safe; freed of the worries about your luggage and other details attendant upon traveling that plague businessmen.

When you made your reservation a traffic clerk wrote your name opposite the seat number on your flight, to make sure the seat wouldn't be sold again. Chances are the traffic department wanted to deliver your ticket, but you said no you would pick it up at the airport. Your contact with the traffic department ended. From that point on you were the problem of the operations personnel.

Specifically, the passenger agent assumed all further responsibility for your trip, short of flying you. When you appeared at the airport 15 minutes before the plane was scheduled to take off, you purchased a ticket from the passenger agent. He asked your name, weight and another question or two, and you boarded the plane and were off on a trip. You didn't pay much attention to the passenger agent, although he took a good look at you.

He saw four things: a sort of guest toward whom he acted as host; a sum of money which, multiplied a number of times, might mean a bonus next Christmas; about 170 pounds just behind the center of gravity; a possible "problem child".

Contrary to what little opinion the public has of the passenger agent, he is not simply a ticket salesman. He is the man who undertakes to weave many dangling ends into a flight. When the traffic department books a passenger; when the post office gathers together a sack of air mail; when the Railway Express Agency has a piece of express—then the passenger agent steps in and combines them all and, with a minimum of fanfare and a maximum of rules and regulations, loads them onto an airplane and creates a flight.

He is a man of a thousand headaches, and each has its separate remedy. He is trouble-shooter, contact man, detail-seeker, brunt-bearer and front. He is that vague step between executive and office boy upon whom the bulk of the work falls. You didn't notice him when he checked you in for the flight. But after the takeoff when you discovered you couldn't see anything from your seat, whom did you berate? Your hostess? Not that pretty little girl. Did you call the traffic office, who assigned the seat to you? Did you write the president?

"... He must know enough about the reading of weather maps to chart its trends . . ."

During the half-hour preceding the departure of a flight the passenger agent must seat passengers, distribute cargo through ship and make out several required forms.

If any airline employee has a thankless job, he is the passenger agent. He is responsible for a ship's loading and must clean up a hundred and one details before the plane departs. And he daren't be late.

You did not. You sought out a passenger agent at the next stop and bawled hell out of him.

If he was a good passenger agent he arranged something for you, and you finished the rest of the flight happy. If your anger did not fizzle out on solution of your problem, then you are a "problem child", the chronic grouch of every flight. Passenger agents are built to stand almost anything—or they aren't passenger agents. But the persistent snarler is frequently the last straw on a heavily-loaded back.

Although the range of responsibilities a passenger agent holds varies in converse proportion with the size of his station, it is never light. In dispatching a plane, his first job is to estimate the load; that is, decide approximately how many passengers the flight will have, the weight of the mail and express, baggage and company material and thereby determine how much gas may be carried.

The pilot and dispatcher huddle over this figure and decide whether it allows enough fuel. If not, off comes cargo. Normally, the passenger agent is free to proceed with getting the flight ready. He orders food and makes up tickets in advance, if he has enough information available to determine what type of tickets will be required. He orders newspapers, prepares the manifests for cargo and passengers and, tentatively, decides how he will load the plane to give it perfect balance, using his estimated figures. Later when he has all the weights, he will check the loading to be sure the plane is neither nose- nor tail-heavy.

By this time, passengers are arriving and the actual departure is some 15 or 20 minutes in the future. The checking-in begins. Few passengers realize how important this process is to the airlines. It entails the sale of tickets, the securing of all full names, connection information, weights of passengers and baggage and the number of pieces of luggage for each. The latter information is to enable stations along the line to remove the correct number of bags; it's insurance that your bag won't be in San Francisco when you deplane at Boston. It is also necessary to find out whether the passengers want transportation from the airport to the city proper at their destinations. Some airlines request passengers' addresses for mailing lists, for returning lost and found items, etc.

Meanwhile, it has taken several minutes to check in each passenger and tag his baggage. During these very few minutes the passenger agent has been exhaling personality and trying to sell that intangible quality that is so important to an airline's popularity: Service. Between penciled stabs at the manifest, the agent is pestered with such questions as, "Can I send a telegram here?", "Can my husband look through the plane before we go?", "Have you ordered special food for the baby?", "How is the weather?"

He's been issuing insurance policies, keeping tabs with the post office and express agency on weights of mail and express and checking with traffic to ascertain whether this passenger is going to appear at the last minute or whether he will "no show" and cause the plane to go out with an empty seat. He has been supplying weather information, reassuring men and women making their first airplane trips, instructing the cargo crew how to load the cargo so that stations en route will have a minimum of trouble removing their quota of bags and mail. He has been answering the telephone and trying to keep his mind on the big problem of getting the flight out with all forms in order and without delay. If there are many passengers, the task is prodigious, not because any of the jobs are hard, but because there are so many details that must be right.

On the technical side, the passenger agent must be an expert on tickets and rates, a short study of which will convince anybody that it is a risky and highly technical subject. He must know enough about the reading of weather maps and Government weather sequences to be able to chart trends in the weather. Passengers ask many questions on this subject, and all must be answered satisfactorily. The walking encyclopedia can also give intelligent answers to questions concerning the construction of planes, their operation, maintenance and theory of flight. He knows all about the scenic beauties of the routes and can give an-

The passenger agent always is on hand to greet the incoming airliner. If there are complaints the passenger usually blames him. Yet he must be a careful diplomat.

swers about hotel accommodations at principal stopping points.

Eventually the plane is loaded. Passenger agents are frequently so busy during the half-hour preceding the departure of a flight that they can remember only disconnected portions of the things they have done and the statements they have made.

The passengers are seated. The mail, express and baggage have been distributed through the cargo compartments. Two mail forms, an express form, cargo and passenger manifests are completed, in addition to several other weight addenda and the flight is dispatched.

And if it is completed so easily, he draws a deep breath, for that is only routine! Efficiency in this job is measured by the clock, and through the mind of the passenger agent ever runs a picture of the second hand inexorably moving toward the minute.

Minutes must be budgeted like dollars. Nothing that will save time escapes the attention of conscientious passenger agents. One discovered he took off his hat and ran his hand through his hair absently before checking in each passenger. That habit was soon overcome. He probably wasted a sixth of a second at least on every customer.

If the weather goes haywire and the flight will pass over one or more stations, there are passengers to train. Anger to be assuaged. Minutes that squirm out of reach in the writing of exchange orders. Seconds that go through the telephone getting rail space. A passenger misplaces his coat. "You won't let the plane go without me, will you?" The second hand never wavers as the coat is sought. "Hold it, fellow, while I make a short 'phone call." A delay report to be written. How to explain it?

Trouble, the unexpected, jeers from all angles. Little troubles. Things a passenger never thinks of. A last fond good-bye, multiplied by 20. The sun shining at four o'clock, fog rolling in at 4:30, ceiling and visibility dropping fast as the second hand covers the dial. It'll take super-speed to get the flight out before the field is below limits. Pray nobody will want a six-stub ticket to Seattle.

While the passengers wait for schedule, they never guess the trepidation of the passenger agent over the little things. The fear somebody will want to get a book from a bag already stowed in the plane. The fear there'll be a time-destroying fight over excess, or somebody will show up with a dog and no container for it.

Long ago the passenger agent became resigned to the fact he was to catch all the abuse and little of the glory. It is a curious fact that complaints are usually laid at the feet of those who are neither responsible for them nor able to do anything to remedy their source. One day a passenger rushed off a delayed flight, grabbed a passenger agent by the lapels and snarled, "You brought me in late. You hold the train for me!" He held the train.

Through their peculiar relation to passengers, the passenger agents fulfill this function for the airlines. If Mr. Nasty misses the coach in the city and spends four times as much as he should by taking a taxi, does he blame himself for being late? No, it's the passenger agent's fault. When the dispatcher refuses to hold for a connection, does he stand up under the abuse? No, the innocent agent finds it his problem to convince the passenger the most good was done for the greatest number of customers.

That, in a nutshell, is the *raison d'etre* for the passenger agent. It is important to know about airplanes, weather, loading, schedules, ticketing. Your ace fixer knows federal laws, company regulations and flying practice inside out. He's a perambulating information booth, a demon of patience. But if he can't deal with passengers, make them happy and comfortable and satisfied no matter how deeply they feel themselves wronged, he never rises above a clerkship.

Barring the hostesses, who go a long way toward making a trip pleasant but who don't actually do business with passengers, the passenger agents are the only airline personnel who come in contact with *all* the passengers. Especially when the weather socks in and cancels a flight, or when a delay is unavoidable, or when any sort of trouble upsets routine, the passenger agent is the representative of the company through whom the passengers have all their dealings.

An outstanding passenger agent can handle a cancellation with such diplomacy the passengers are more impressed with the service than if they had had a normal trip. But let the inexperienced or tactless man try to handle a group of 20 disgruntled men and women, and 20 customers can be forever lost to the company and to air transportation.

The most frequent cause of dissatisfaction is the charge for excess baggage. On domestic airlines the baggage allowance per passenger is set at 40 pounds. The majority of people get along nicely on less. Forty pounds is a big suitcase carrying two suits, plenty of shirts, underwear, shoes and accessories and even a typewriter. It is an allowance calculated to satisfy more than modest requirements and yet give some assurance the planes won't be loaded beyond their useful capacity with luggage.

So it is a federal law of the CAA that a maximum of 40 pounds may be carried free on each ticket. To allow more is unlawful. But passengers insist on taking more and stubbornly refuse to pay charges or understand why they cannot be waived. Every day every passenger agent must tactfully collect excess charges without alienating the passengers' affection.

There are scores of such laws that must be observed faithfully, which air travelers unreasonably disregard. They fight over carrying pets in the cabin. They insist on taking bottles aboard with them, even though a pilot can lose his license by flying an intoxicated passenger. They fight for their right to smoke cigars, though the rest of the passengers are sick as a result. They solemnly swear that a lower berth was confirmed, when all records show none was available when the reservations were made.

The happy solution for all such problems is the job of the passenger agent. He works for people who instinctively dislike him because they know he will have the last say, no matter how nice he is about it. He is snubbed by the proud and treated as a menial by the haughty. Only when he has a favor to bestow is he given the status of an equal. He is

(*Continued on page* 89)

PERSEVERING PILOT

by

GEORGE R. REISS

This is the story of a one-armed man who was determined he was going to fly—and did. Today he's a veteran airman with 2,200 hours and his own ship.

This is Dale M. Riblet (left) with Clare Bunch, head of the Monocoupe Corporation.

IF it's a story of determination and courage you want—dogged, unswerving, unrelenting determination and unflinching courage, even in the face of almost certain failure—then we'll give you the story of Dale M. Riblet.

You have heard plenty about the outstanding one-eyed airplane pilots—Wiley Post, Lowell Yerex and the others; and you have heard about the one-legged pilots—Benny Howard, Major Alexander DeSeversky and Harold Elliott; and now you will hear about probably the nation's only outstanding one-armed airplane pilot, Dale M. Riblet.

And an excellent pilot, too—with 2,200 good, safe air hours in everything that flies, from the tiny single-seaters to the giant multi-engined liners recorded in his log book, despite the empty coat sleeve that dangles pitifully at his side.

Riblet may not be the country's oldest or best air pilot, but he certainly is one of its most remarkable pilots, and one of the best known as a pilot's pilot wherever men fly. He probably is the biggest and most persistent and long-lived headache the Civil Aeronautics Authority and its predecessor, the Bureau of Air Commerce, has ever known. For how can you license a one-armed man, a chap with his empty sleeve showing up so conspicuously, to pilot an airplane filled with passengers—and yet how can you withhold a license from such a guy who can fly as surely and faultlessly as the best inspector in the field and who won't take no for an answer?

Dale M. Riblet's story is one of persistence, determination and courage from the beginning. It took plenty of persistence, determination and courage to build up his sizeable and prosperous wholesale oil and gasoline company (which does business throughout eastern Ohio) from a single gasoline filling station in Youngstown, Ohio; and it took plenty of persistence, determination and courage to learn to fly and to continue to fly for over a dozen years, despite a skeptical public and an unsympathetic and hostile aeronautical regulation board.

But he persisted and won and today he is regarded as an outstanding businessman and one of Ohio's best airplane pilots. Riblet, as a youngster, first dreamed of flying when Orville and Wilbur Wright still were known in Ohio as "those crazy cranks, the Wright brothers." Riblet got wildly enthusiastic about the first pusher plane he saw—and talked incessantly about learning to fly. Then one day a threshing machine in his father's barn accidentally caught his clothing, whirled him about a couple of times, jerked off all his clothing and threw him into a corner, a quivering, bleeding, unconscious heap. At a hospital the doctors despaired of his life. His one arm was broken in two places; and the other was gone, jerked out of its shoulder socket.

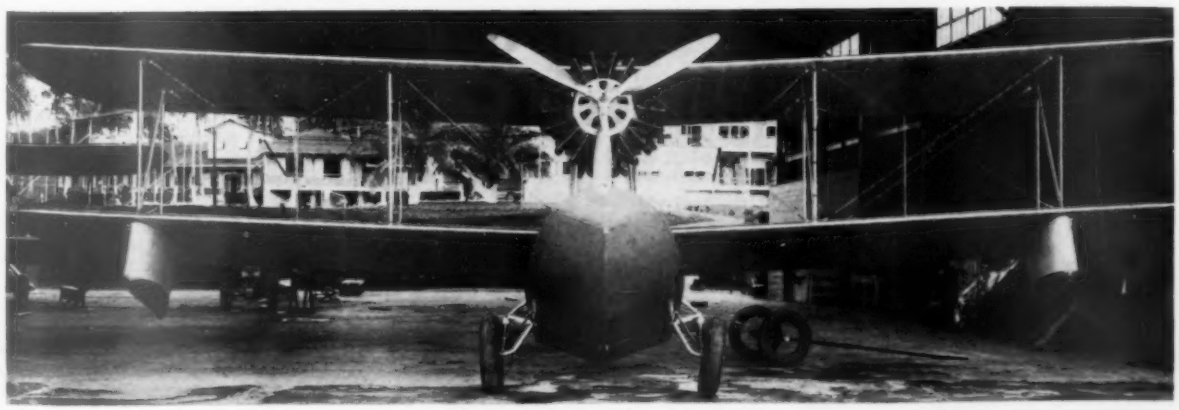
Well, he lived.

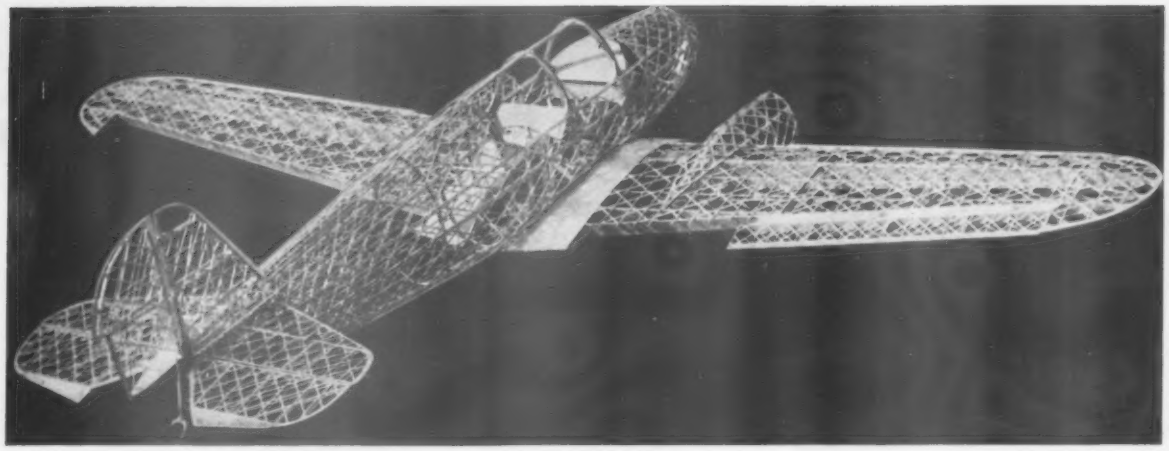
"Too bad," bemoaned a caller at his hospital bedside. "Now you can't fly. Who ever heard of a one-armed flyer?"

Riblet flew into a rage.

(*Continued on page* 82)

Riblet recently bought a rebuilt Loening amphibian like this and uses it in his business.





Exponents of the wooden airplane hold much hope for the geodetic-type ship which uses thin wood strips in the manner shown above. Wood has many advantages over metal, does not suffer fatigue.

★

IS THE WOODEN AIRPLANE DOOMED?

by
LESLIE LONG

The all-wood airplane is a rarity in the U. S. today. Whether the complete reversal to metal is justified is questioned by the author.

★

FOR those of us who, as it were, sort of grew up with the airplane, a tragic thing is taking place. Whether we like it or not, our old, tried and true friend, the wooden airplane, is being relegated to the limbo of forgotten things. Until very recent years to think of airplanes was to think of wood, especially spruce, but today the tendency is all toward metal. A recent issue of this magazine contained an article which states: "—we may soon reach a time when all aircraft will be built of metal." On every hand we are being told of more and better all metal planes and those of us who still believe in the virtues of wood feel that they are not doing right by our Nell.

In this article we propose to bring forth some of the pros and cons in reference to both wood and metals for use in the aircraft industry. We shall especially try to show that in abandoning wood in favor of metal, the designers of our modern aircraft may be overlooking something of value. We shall also try to point out a condition that certainly should receive more attention than it does.

The trend toward all metal airplanes is of course typical of American business methods. "Quantity production" is the ultimate goal of our manufacturers and it so happens that metal has lent itself far better to the construction of modern aircraft than has wood. The result has been satisfactory so far as quantity goes. The great punches and drop hammers are beginning to roll out airplanes much as automobiles are born. The industry claps its hands and smiles approval, as well it may. But after all there is always the other side to any subject.

It should be significant that from the earliest tottery beginnings airplanes have been made partly or wholly of wood. To this day, the majority of engineers outside this country still use it, so it must have virtues. Granting, however, that it is being supplanted by its younger rival. It might be well to look at some of the advantages and shortcomings of both.

In its favor metal has outstanding characteristics. It is always available and the supply is unlimited. It is highly uniform in its physical characteristics, a vastly important feature. Most important of all, it lends itself easily to fabrication. It may be stamped, punched, forged, bolted, riveted or welded. In short, it is ideally suited to machine methods of construction.

Against it are many shortcomings. One of the greatest of these is the condition known as fatigue, or crystallization. It is the writer's belief that more than 75 per cent of structural failures in metal aircraft are due to this weakness and there is no known cure, aside from constant vigilance. Corrosion is another serious problem. Some of the modern alloys are notoriously subject to this trouble and can be made useful only through complicated and costly protective methods. As to cost, metal is far more expensive than wood, beam for beam, strut for strut.

From the practical public standpoint, the greatest disadvantage of the all metal airplane is the factor of replacement and repair. An airplane is a comparatively frail structure and from the time it makes its test hop until it makes its final flight, is subject to a bewildering variety of accidents. Accidents usually call for repairs and it is here that the all metal airplane shows to disadvantage. Like Humpty-Dumpty, the all metal airplane is hard to put together again. Component parts are apt to be frail and once broken or deformed must be discarded. Airplanes have reached such a size it has been found cheaper to abandon them in case of serious breakage. They are too large to move and cannot be repaired on the spot because of the specialized material and machinery required. That certainly is not good economy. Repairs to the smaller ships must nearly always be made at the factory, and that also costs heavily.

Wood is, of course, entirely free from fatigue troubles. That is one reason why the wooden propeller is still in such high favor and why there is always a feeling of added security about wooden structures. Wood does not deform in the true sense. It either bends or breaks under stress and has a high degree of recovery.

The stately tree being felled above is a spruce, the heart of the wooden airplane. Large exports of this valuable lumber have caused alarm among wood-plane users.

Repairs to a wooden airplane can be easily and cheaply made anywhere. The average repair station can make prompt repairs to the wood parts of any plane, but can do little with a metal job, especially if constructed of the modern light alloys. To the owner this means the difference between a quick and inexpensive repair, or a long and expensive delay.

One of the great objections to wood has been that there was no really satisfactory way of making joints. Where metal may be welded, bolted or riveted, wood must be joined by cumbersome fittings, which at best do not develop the full strength of the member. In the past, when wood structures were usually based on truss systems such as the Warren or Pratt, this problem was serious. Today, with the introduction of new developments such as the geodetic system and others, the old problem has been practically eliminated. In the geodetic system, for instance, both body and wings are built up of a large number of small parts, each carrying only a small load and therefore there are no highly stressed joints. Another new method is being tried with considerable success in Europe. It is the so-called "sandwich method." A layer of thin spruce veneer is glued to both sides of a comparatively thick slice of balsa wood. The balsa gives the necessary stiffness to prevent local deformation, but adds little to the weight. The wood may be glued up in shaped presses to any form desired and will hold its shape after drying. Such shapes as double reverse curves are quite possible and lead to beautifully streamlined structures.

Another interesting scheme is being tried. In this, a structure similar to the geodetic is built up of light wood and then completely covered with a plastic. The result is similar to reinforcing concrete with steel mesh. The plastic protects and binds the wood and the wood prevents cracking in the plastic. It would seem to be an ideal method. For heavily stressed parts a process has been worked out by which the wood is thoroughly impregnated with a resinous plastic. The result is impervious to moisture, 100 per cent stronger than before and may be machined like metal. It has given highly promising results when used for the blades of variable pitch propellers.

Contrary to popular belief, these new methods are adapted to rapid construction. The geodetic, for example, is adaptable to moulding. The lattices are placed in a form, glue is applied and the whole dried by heated compressed air in a bag. Thus an entire structure may be completed within an hour. Considering the speed and the negligible cost of material the system certainly should appeal to manufacturers.

America stands almost alone in its insistence on metal aircraft. European engineers have always favored wood and no one can deny that they have succeeded with it. It is only the success of the American all-metal type that has forced them to undertake a certain amount of metal construction and they still like wood partly, no doubt, because of the economy factor. Their private-owner, all-wood ships are second to none and it will be recalled that Colonel Lindbergh chose one of them for his personal use while in Europe. This writer believes that if some American manufacturer will place a good, all-wood light ship on the market he will find a ready and willing market. He would at least start with the good wishes of the repair men, as well as a price advantage that might be hard to compete with.

There is one final point that should be brought up here. If this country were to be involved in a protracted war there would be an immediate and insatiable demand for military aircraft. With the highly specialized machine construction now coming into universal use the nation's aircraft output would be no more than the existing factories could produce. The complicated, specialized machinery could not be duplicated at a moment's notice. Further, there is the factor of the rapid obsolesence of such machinery, so the so-called "shadow factory" system would hardly be practical.

(*Continued on page* 80)

The true airplane spruce takes hundreds of years to grow, even then is selected.

These are spruce logs going down to the mill. They will be cut up for plane use.

Careful inspection and weeding-out of airplane spruce is an important job.

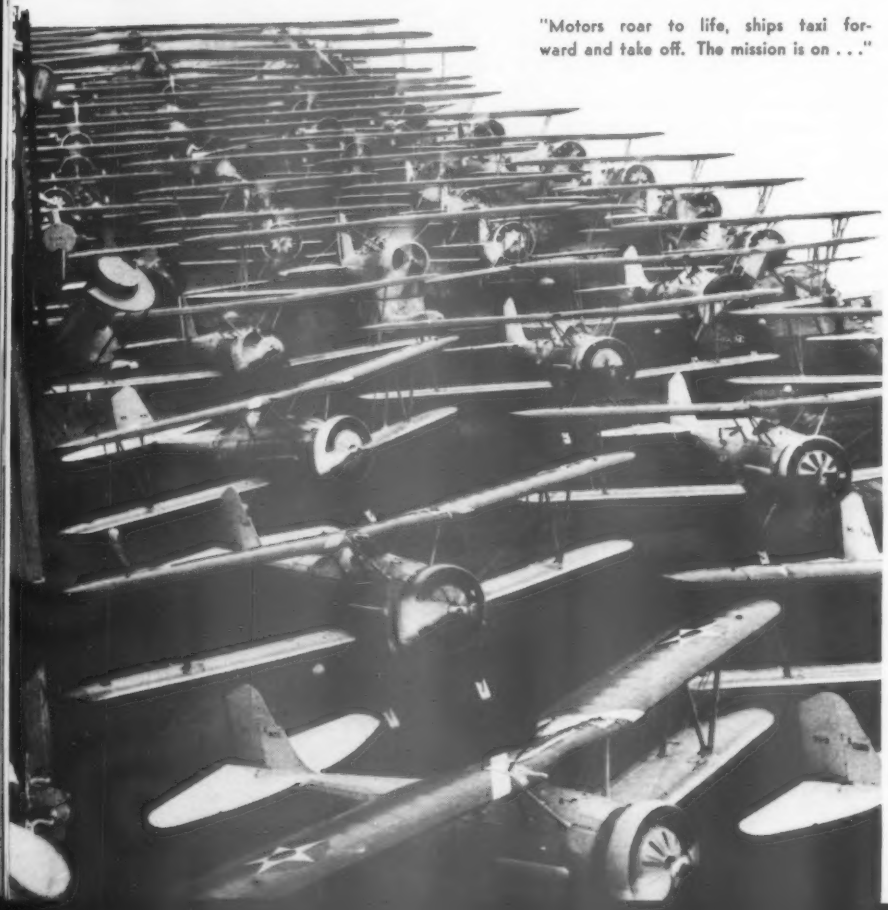
Below is selected spruce after going through the saw mill. This wood is costly.

LIVE LOAD

By ROBERT A. WINSTON

Navy fighters, far out to sea, with no refuge other than their home carrier.

"Motors roar to life, ships taxi forward and take off. The mission is on . . ."



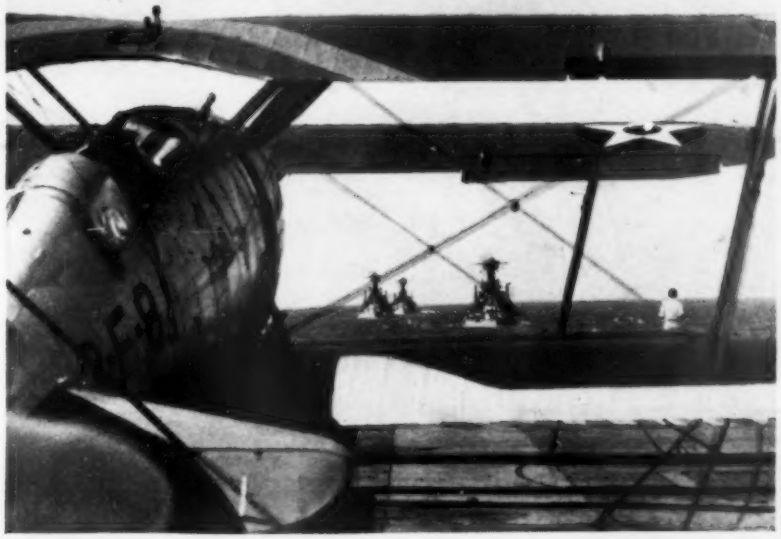
A GREAT many people have the mistaken impression that the job of a Naval aviator in peacetime is a pretty soft snap, playing at war now and then, flying a few hours a day and living the Life of Riley at the expense of the taxpayers.

At first glance this might appear to be the case. Fatal accidents have become so infrequent, due to improved equipment and rigidly enforced safety precautions, that the automobile casualties at any of the larger air stations often outnumber the aviation casualties nearly three to one. However, this does not mean that military flying operations are safer than driving an automobile. If that were true, the insurance rates for service flyers would go down accordingly and they are still a great deal higher than the premiums for ordinary occupational pursuits. In mass operations where dozens of planes are involved, the Old Man with the Scythe still rides astride the fuselage, invisible to the pilot until that split second before he unexpected emergency occurs.

Ignorance is bliss, as far as a man's ultimate fate is concerned. Any Naval aviator who allowed his mind to dwell on the dangers of his occupation would soon be useless to his squadron. Fatal crashes usually happen so fast that the flyers involved have very little time to anticipate the crash or to worry about it beforehand and usually suffer no pain whatever. Airplane crashes have one peculiarity uncommon to automobile accidents: injuries are infrequent. If the plane is not completely demolished the pilot usually is able to walk or swim away from the wreckage, thanks to the

Navy pilots fly out to sea, their ships' bomb racks loaded with sudden death. They are brave men but they tense at the thought of the high explosive clamped to their ships. Supposing a faulty detonator lets go too soon . . .

Above, a fighter takes off on the breath-taking mission described in this article.



Far at sea with the fleet, the Naval aviator lives only for the following day's maneuvers. Here are fighters aboard their carrier, awaiting orders from the flagship.

safety belt which absorbs most of the shock.

But occasionally, even in peacetime, the service flyer is confronted by a situation where he can see the danger beforehand. At such times it is impossible for him to ignore the obvious, or to wipe the fear of death out of his mind. It is then that air discipline gets its real test and it is then that the service flyer earns his flight pay many times over.

Such a situation occurred off San Diego, after the completion of the 1937 Pacific Fleet Maneuvers. With Fighting Squadron One, I was attached to the aircraft carrier *Lexington,* which had so far completed the cruise without a single casualty, in spite of extensive maneuvers in rough seas north of the Hawaiian Islands. At the conclusion of the maneuvers we started for home and a few days later we caught the unmistakable, fresh, pungent odor of the land, invisible behind a fog-bank off of California's rocky coast. The next day the fog lifted and all squadrons took off for a gigantic aerial parade over San Francisco to dedicate the newly completed Golden Gate Bridge. On our return to the ship we had to land aboard under unfavorable conditions. The flight deck of the carrier was rolling nearly 30 degrees, and the stern ramp was pitching nearly 50 feet at times. Several planes were badly damaged coming aboard, but Death took a holiday, and there were not even any injuries.

Anchoring in San Francisco Bay, we went ashore for a week of royal welcome, then steamed out through the Golden Gate to head for North Island. When we flew our planes ashore, it seemed strange to set them down again on *terra firma,* after nothing but carrier landings for nearly two months. Most of us avoided the landing mat and used the grassy edge of the field for our landings, to avoid ground-looping or leveling off too high, but even with these precautions there were some pretty fancy landings. All of the married officers' wives were waiting in front of the Squadron hangars, and it was a real homecoming.

The subsequent weeks saw the squadron routine resumed. Gunnery drill brought new and interesting exercises, including an experimental long range fixed-gun practice that increased my respect for the accuracy of synchronized machine-guns. Dive-bombing followed and again I experienced the thrill which always accompanied this work, even with practice bombs. This time we started our approaches from 15,000 feet, reaching terminal velocity in every dive.

Then the Skipper announced that we were to take part in a live load practice in which we would use real bombs. Several days were devoted to preparing for this practice and, just before the takeoff, the squadron gunnery officer gave us a final lecture on safety precautions. "And don't forget to arm your bombs," he told us as he wound up his talk before the assembled pilots of the squadron. "We've all been dropping practice bombs for so long it will be hard to get used to live ones. If you drop these bombs unarmed they won't explode and you'll bring the squadron's score down. Any questions?" he asked with a pause. "All right; let's all go out and get some hits."

We filed out of the squadron office towards our planes, which were waiting with their engines turning up, and prepared to take off from the field. I climbed into the narrow cockpit of my Boeing fighter, opened the throttle momentarily to test the magnetoes and taxied out behind my section leader. There was hardly a breath of wind; the smoke from the smudge-pot in the center of the landing mat was rising almost straight up in the still air.

(*Continued on page 72*)

ERNIE SMITH
Says
"I WAS A HERO"

as told to Paul Conant

Years ago wild crowds screamed congratulations at Ernie Smith, the hero of the hour. Today, 12 years later, he looks back on his famous flight and those breath-taking days that followed.

The author climbs into his ship, ready for the take-off to Hawaii.

"QST—QST—QST." Emory was sending the distress signal. I couldn't hear it, of course, with the J-5 roaring, but I knew what he was doing. Down below, there wasn't anything but clouds and rolling fog. Under that, we guessed, was the Pacific Ocean. We hadn't seen it for more than 2,000 miles—last we saw of it was when we headed west over the Golden Gate the day before. It was deep and cold, that old ocean, wherever it was, and it was a good idea to keep your mind off it. Then, suddenly, the engine skipped a beat. So did my heart. I turned around in the cockpit of our little Travel Air.

"We've got gas enough for about an hour, I think, unless you can find more in those tanks!" I yelled. "Then we'll set her down and break out the rubber boat."

Emory Bronte—the best navigator since Columbus; don't let anybody tell you different—just nodded. He was busy rapping out that sharp little signal. "QST—QST—QST. . ." It was 5 a.m., Pacific time.

An hour later I dived through the clouds to look for a ship, but there wasn't any ship. Just rolling gray water. We were so low the sea carried away the aerial and that ended the QST business. Emory released our two carrier pigeons. No use drowning them; they didn't ask to come. A little later we went on top of the clouds again and then we saw what looked like a mountain. Then another! Emory said we were northeast of Hawaii, so we dived under again and set a course for Wheeler Field, on Oahu—and then the engine sputtered and quit again, deader than a doornail. All I could do was head for the Molokai shore, and that's what I did. I picked out what looked like a nice soft spot in a grove of kiawe trees, and set the *City of Oakland* down with a splintering crash.

We just sat there for a minute and gasped with relief. The ship was washed out, but we didn't have a broken bone. And we had done it! We were the first civilians to fly from California to Hawaii—roughly 2,300 miles in 25½ hours. Thank God, it was all over.

All over? That was just the beginning. We were ready for danger, we were ready for a dive into the Pacific Ocean if necessary, and we were ready to crack up in a kiawe tree. All these things we understood. What we *weren't* ready for, and what we *didn't* understand, was the reception we got in Honolulu, in San Francisco, Oakland and in the rest of the world.

Parades, banquets, dizzy offers and daffy compliments, mail by the truckload, a lot of wild hero-worship, mass hysteria—and also a lot of sincere admiration and friendship. We had seen, just a few months before, the world go crazy over Lindbergh and then over Chamberlain and Levine, then over Maitland and Hegenberger, but we hadn't thought about what might happen to us in our smaller way. We weren't, of course, either of us anything like the figure that Lindbergh was, but we got our share of the crowd's roar—and then some!

You're wondering what I think about it now? You ask me how it feels to have been a "hero"? Well, I don't like that word much; I wasn't a hero, I was just another flyer who wanted to go places. But today, sitting at my desk in San Francisco where I am District Traffic Manager for TWA, I often think back on those old days and what happened and what it all meant to me; just what it adds up to. And I'll tell you one very important thing I learned—*by and large, people are swell.* The crowd's roar makes a lot of noise and a big part of it doesn't mean anything. But, in the main, people are sincere, they don't let you down and they don't forget you.

Then of course there's another thing I'm glad about; it's that I had the chance, in the *City of Oakland,* to play a part in the pioneering days of aviation, before aviation and I settled down. It's good today, when I sit at my desk and know that our flights are going out and coming in with clocklike precision, to remember that I grew up with the business and helped a little when the industry was in its old glorious roughneck days.

All I can say about that flight is that it has never brought anything but good to me. Right afterwards, sometimes the demands on my time were very heavy and often I was asked to do things which seemed pretty foolish and trivial, but there never was anything unpleasant. No; the flight paid me dividends in every way. Aside from the natural satisfaction I had in doing a good job for myself and maybe for aviation, the best thing I got out of it was *people.* Newspapermen have a sarcastic way of saying, of their work, "Well, you meet so many interesting people!" I say that without any sarcasm; I *have* met many interesting people and I wouldn't have met them if it hadn't been for my flight in the *City of Oakland.* Certainly, most people I meet are more interesting to me than I am to them—and that's the most broadening education in the world. And, speaking of newspaper people, they are grand and I give them all the credit for their big share in the flight.

I've always been glad I made that flight and I've always been glad I *could* make it. I was very lucky in every way, principally in having the best navigator in the world along with me. Without any chance of shooting the sun and with our radio haywire after 200 miles and therefore not getting the Army beam, Emory hit the Hawaiian Islands just about as close on the nose as you would ever hope

The triumphal return to San Francisco. Extreme left is Emory Bronte; at right is the author. They toured many cities.

a human being could do. Navigating a plane that's shooting along at 100 m.p.h. or so is a lot different than navigating a steamship, where you have lots of time to think it over. In a plane, you make one little mistake in your calculations and in no time at all you may find yourself heading for the Coast of Borneo instead of where you were going. And it'll be too late to do anything about it.

When I was first planning that flight everybody—without any exception that I can think of—thought I was nuts; completely wacky. People still sometimes think of me as a lad who just gambled his life on a spectacular stunt for a little cheap fame. When I run into this attitude I can't help but be annoyed. You have to remember this: in 1927 there

(*Continued on page* 64)

Smith (left) and Bronte today. The latter is an oil executive; Smith is with TWA.

The "gag" shot below was supposed to depict a test of the plane's emergency gear.

Many are the tales of friendship among this group of Hollywood movie pilots.

GREAT PALS, THESE PILOTS

by EDWARD CHURCHILL

Though these racing pilots always compete against each other hotly, they never hesitate helping each other. Extreme left is Art Chester; right is veteran Tex Rankin.

PAUL MANTZ, Hollywood stunt flyer, arrived in St. Louis a day before the air show which featured the international aerobatics competition two years ago. He taxied his Boeing P-12, which carried smoke tanks, up to a hangar apron and sought out the promoter of the show to get permission to make backgrounds for a Twentieth Century-Fox picture. The promoter told him that he could make his shots if he'd enter the stunt contest.

"But I haven't any routine!" Paul protested. "I can't go out there cold and do my stuff."

However, he finally agreed, walked out of the "ad" building and met red-faced, roly-poly Tex Rankin.

"And so," finished Paul, "I'm going to enter—and come in last."

"See here, Paul—you can't do that," Tex drawled. "You're a Hollywood stunt pilot. You have to put on a real exhibition. That's your bread and butter. You can't go back to Hollywood with everybody saying you can't fly for sour apples."

"But I still haven't any routine!" Paul protested.

"Okay. I'll lay out one for you and teach it to you," Tex insisted.

"But, Tex—I'll be competing against you. You don't want to teach me the stuff you know when I'm in the same contest with you."

"So what? Come on—let's get to work."

Using model planes, the Boeing and

There aren't many pilots who would not risk their lives for a fellow flyer. The stories of some of these friendships would read like the plots for fiction stories.

anything else he could get his hands on, Rankin crammed Mantz so full of acrobatics they were popping out of his ears —including a slow roll while making a figure eight, one of his own pet tricks. Came the competition next day—fast, furious and hot. The final score was: Rankin, first, Alex Papana of Rumania, second, and Paul Mantz of Hollywood, third. Mantz probably would have been second if he hadn't smelled the odor of burning linen and discovered that his smoke equipment was threatening to set his ship afire. That made him a little backward.

This story, vouched for by both men, serves well to illustrate the fact that today, high above traffic's roar and industry's din, and the struggle and cut-throat competition of the hour, flying is still friendly, still abounds with a kinship and freemasonry which can be found no place else. The industry itself is growing by leaps and bounds — new young blood is coming into it—thousands fly where only hundreds flew before. But the greatest fraternal organization in the world is still held together by invisible pairs of wings.

Today, the plane is a war machine. Prophets say that in case of hostilities, airplanes will wreak more death and destruction than the world has ever known. Yet, looking at flying from the human angle, planes have done more to cement international friendships than anything else in history. Marshall Headle, chief test pilot for Lockheed, told me the other day:

"In travels which have taken me virtually around the world I have found no man I can't call friend. There are international boundaries, sentries, passports, Maginot lines and the newspapers are full of threats and hates. But pilots know little of this. At every airport at which I've ever landed, I've been treated not only like a brother aviator but like a brother.

"The odd thing is that flyers seem to have an international language of their own. Somehow, I've always been able to tell another pilot what I've wanted and somehow he's always been able to get it. This same phenomenon has been observed at Burbank. I remember one Russian party. Not one airman could speak a word of English. Groundmen, reporters and others tried to find out what their needs were, how to entertain them. A bunch of fellow-pilots, so to speak—although they were Americans and had never met the Russians—moved in, and soon everybody was happy. The strained atmosphere left. The Russians had a grand time. No, it wasn't sign language. It was just that somehow, the flyers *understood* each other."

In America there have been thousands of examples of this kinship of the air. Jack Knight, pioneer air mail pilot, spun me a story not long ago about his buddy, "Slim" Lewis. He and Lewis, back in air mail days, were ferrying two DH's from Newark to Cleveland. The DH's had a bad fire reputation and, when Jack smelled burning varnish, he got very uncomfortable. He was over Morriston, N. J., a region of hills, trees, valleys and small lakes. He signalled to Lewis, asking him if his radiator shutters were open. Lewis sign-languaged back that they were closed. Jack's shutter lever indicated they were open, so he knew that the operating mechanism was jammed, that he had to get down and right now.

"Where's a field?" he signalled to Slim.

"Down there," indicated Slim.

"I don't see it," Jack replied in sign language.

Jack told me the rest:

"Slim had been flying that country and knew it better than I. All I could see was trees, hills and water. It looked too tough for a helicopter. I didn't know what to do. So I just waved my hands in the air like a guy going down in the drink for the third time."

Lewis knew there was a chance that he'd write himself off. But down he came. According to Jack he came in over wires, brushed his wing tips against trees and came to a stop with his propeller five feet from a fence.

"And so I landed, we made repairs, and we went on," says Jack, winding up another episode in the air fraternity. Today, Harold T. "Slim" Lewis is director of pilots for the new Canadian transcontinental and he and Jack don't get together as often as they used to. But Jack never will forget that kindness.

Roscoe Turner, America's premier speed merchant, is famous for being out for himself from the burst of the starting bombs to the last pylon on the last lap. But Roscoe has a heart as big as a house. Last year he proved it when Tony LeVier, Greve entrant; and his backer, Bill Schoenfeld, had to tear down the motor of their little firecracker the night before the race. It looked as if there wasn't a chance in the world of getting new pistons and pins they needed.

"Wait a minute!" snapped Roscoe. "You guys can do it. You've got to do it!"

He knew the gang at Thompson Products, across Cleveland. He called the company, asked them to stay open, and put LeVier and Schoenfeld in his old Packard. He took them across the city so fast to get the parts that the next day,

Left is Edward Churchill. He is with Clyde Pangborn, famed old time flyer.

Colonel Lindbergh once called some barnstormers "the safest pilots on earth."

How John Wagner (left) and Jack Ayres became fast friends is an unusual tale. That friendship eventually brought them together as working partners with the Vultee firm.

Garland Lincoln once stuck to his fall-

after Turner had worked half the night helping them, LeVier won the race.

"The race itself was a breeze," LeVier says, "compared to the ride Roscoe gave us."

Again that fellowship.

Those who have raced with the late Frank Hawks, Wiley Post, Bill Brock and Art Goebel and Lee Schoenhair, to mention just a few of the racing pilots, say that while reports have gone out of cut-throat competition, the men often worked all night on other pilots' planes so that they could compete.

Another gallant gesture occurred when the Douglas 'round-the-world planes came into San Francisco in 1924. South of San Francisco Leigh Wade and "Hank" Ogden developed battery trouble. Their Liberty quit cold and it meant a dead-stick landing. Lowell Smith, flying another Douglas, dived down under them almost as quickly as e trouble started. He knew that they ad no power to get out of a jam, and nce they were down they were down. n the other hand, he had power and ould get down first and look around.

He scouted over the marshes in the icinity of what is now Mills Field, ound a hard spot, rolled his wheels and limbed out of it. Wade came in behind im, made a safe landing instead of pil-ng up in a bog.

In going over personal recollections, find that Col. Charles A. Lindbergh ates a bow for something he did in 928, less than a year after his historic tlantic flight. The Gates Flying Cir-us, composed of three droopy-winged Hisso-Standards, was playing across the iver from Parkersburg, West Virginia. Lindbergh dropped into the field. He ooked over the crates. Lindbergh said o the boys in the circus:

"It's a mystery to me how they stay n the air."

He nodded at the ships.

His dislike of newspapermen is well-known, but when one approached him later and asked him about the Gates outfit, he said:

"Those boys are the safest pilots in the world. It's an honor to be able to fly with them."

Lindbergh was front page news, and his "tribute" to the Gates outfit, given wholly in a spirit of good-fellowship, hit the front page, too. The planes established a business record as the result of his kindly report.

Major William C. "Whispering Bill" Brooks never tires of telling how he happened to join the Gates outfit in the middle twenties. He was flying in east Texas in near-zero weather, business had been bad, "northers" had blasted him and his mechanic and he was actually wearing shoes which had newspapers in the soles to keep the water out. His crowning shock of bad luck occurred when a blow torch he was using set fire to his old crate and left a ruined motor and a pile of wire.

"To top it all," he relates, "I owed a hotel bill. About this time the Gates outfit came nearby and I hitched a ride. I saw Clyde Pangborn. He told me that he didn't have a ship for me, but to come on along with my wife and mechanic and he'd find something for me to do until he got one. So we tagged along. Pang got us out of hock."

Later, Brooks became one of the most famous of the Gates pilots.

Behind the present friendship of Jack Ayres and John Wagner, Vultee test pilots, lies a strange tale which illustrates the way air friendships develop, how fraternity comes from chance acquaintance. Wagner a few years ago was flying the Buenos Aires-Santiago run of the Pan American-Grace lines. Ayres was hauling mining equipment in and around Lima in a cargo ship. Both had known each other slightly in the States. They began coding on short wave—two lonesome pilots thousands of miles away from home.

Then one day John Wagner's baby, Sarah Jane, became ill. Her condition rapidly grew worse. Wagner was forced to fly from his home at Santiago to Buenos Aires. Ayres, at Lima, kept in touch with Santiago and forwarded almost hourly reports on the condition of the child to Wagner in Buenos Aires. Later, when Wagner came to California, he kept in short-wave touch with his wife through Ayres. Finally, Wagner got Ayres the job with Vultee. The development of the remarkable friendship may be traced directly to the universal good-fellowship of pilots everywhere.

Sometimes, consideration for the other fellow rises beyond what is known as friendship and becomes downright heroism. This was the case when Garland Lincoln, Ivan Unger, Fred Hall and Frank Austin went aloft in the late twenties to make a scene for a motion picture. Lincoln was flying. Unger was assisting him and had charge of lampblack which was to be released to give the effect of smoke. Hall and Austin were to bail out—the screen play called for the ship to have only two men in it for photographic purposes—and then Garland was to slow-roll to give the effect of the start of a crash.

Hall jumped clear. Austin followed, but

(*Continued on page 76*)

I Learned About Flying From That!—No. 6

By HOWARD BATT

One reckless decision and a veteran airman finds himself in a tight spot. Proving that the insignificant things in flying can turn out to be the most dangerous.

Howard Batt

2 FLIERS RESCUED IN PACIFIC
SHIP ARRIVES AS PLANE SINKS
SHIP SAVES TWO LOST AT SEA IN PLANE
HOLLYWOOD FLYERS FALL IN SEA
FINAL EDITION
BLACK CAT'S LUCK SAVES AIRMEN FROM DEATH IN SEA
Ordinary Omens of Ill Fortune Work in Case of Flyers in Ocean Ho...
S. F. SHIP SAVES 2 'LOST' FLYERS
SIGNAL LINER AND AIR SAVED AS SHIP SINKS

These newspaper clippings tell how closely the author came to killing himself and his partner. Today, Howard Batt is one of the outstanding motion picture stunt flyers.

I WOULDN'T fly out of sight of my home airport without a compass for all the caviar in Russia. That goes double in spades for flying an airplane *anywhere* without full gas tanks—enough fuel to take me where I'm going, plus a reserve that will land me at an alternate field or even back where I started if I can't reach my destination.

I made those rules for myself one cold spring night clinging to the wing of an old Standard J-1 biplane—awash in the ground-swells of the Pacific Ocean, 25 miles offshore!

You don't forget a lesson like that. The whole misadventure—nearly the last one for W. E. "Spider" Matlock and me—climaxed the worst run of bad luck I have ever had, starting with a bankrupt "flying circus" and ending with the dunk in the drink.

The flying circus started from Los Angeles early in 1926 under the name of "The 13 Black Cats," not because there were that many of us but because the numeral and the ebony feline comprised our superstition-defying insignia, painted on our planes and stitched to our flying jackets and sweaters.

I'm not ordinarily "spooky" but, as I look back on that disastrous spring, I'm wondering if a better name couldn't have been chosen. . . .

We had four ships: two Jennies, the Standard and a Tommy-Morse Scout that we used for stunting and ballyhoo. The Jennies and Standard we used impartially for hopping passengers, wing-walking, plane changes and parachute jumps. We were booked out of Los Angeles on a barnstorming tour that was to take us northward to the Canadian border through a score of Pacific Coast towns.

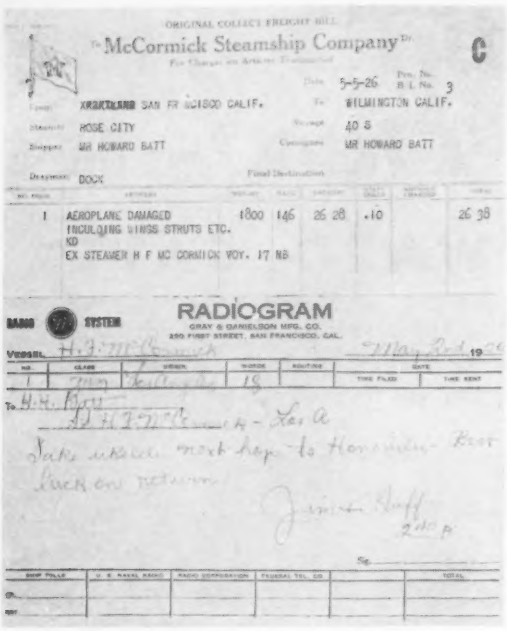
The pilots were Jerry Phillips, still an active flyer and member of the Associated Motion Picture Pilots; George "Slim" Maves, later pilot for Wally Beery until a fatal crack-up; "Loot" Barber, so nicknamed because he held the rank of Lieutenant in the U. S. Army Reserve; and myself. Our stunt men were Ivan Ungar, Freddy Osborn and Matlock, my companion on the sea-going expedition. Matlock later chose the "comparative safety" of the auto racing game and was killed while riding as mechanic for Al Gordon at Ascot Speedway just a few years ago.

What a "tour" that was! We opened in Bakersfield, just a hundred miles north of Los Angeles. Barber "spun in" with a passenger in one of the Jennies. We left the Jenny in the junk yard and Barber in the hospital with a fractured skull. Our next stop was Fresno. The first day of the second show "Slim" Maves made a one-point landing in the Tommy Morse and we were stuck there, missing two other dates while we repaired our star ship.

Our third—and last—stop was Modesto, where I administered the coup de grace to the "13 Black Cats" by mushing the Standard into a vineyard with two passengers when the motor failed on the take-off. Nobody was hurt except the promoter of the flying circus. He took one look at the third big repair job in as many weeks and found other business in distant parts—without saying exactly where!

For the next two and a half weeks Modesto was host to six stranded pilots and stunt men while we repaired the Standard by day and stood off the hotel manager by night. We held a council of war and the boys elected me as head man to see if we couldn't salvage something from the collapse of the tour. A cooperative show at Modesto gave us a few dollars for gas and we moved on to Sonora for a one-day stand, hoping desperately to carry on with the original "13 Black Cats" itinerary.

Rescue came in the form of a telegram from Hollywood offering work on a movie, with steady pay checks for all of us. No more gambling for us. Our first stop was Bakersfield, for a visit with Barber. The next was to be Clover Field, Santa Monica, where we were to report



ORIGINAL COLLECT FREIGHT BILL

McCormick Steamship Company

5-5-26 — Pro. No. — B/L No. 3

FROM HARTLAND SAN FR ALAMEDA CALIF. — TO WILMINGTON CALIF.

ROSE CITY — 40 S

MR HOWARD BATT — MR HOWARD BATT

DOCK

1	AEROPLANE DAMAGED INCLUDING WINGS STRUTS ETC. KD EX STEAMER H F MC CORMICK VOY. 17 NB	1000	146	26 28	.10		26 38

RADIO SYSTEM — RADIOGRAM — GRAY & DANIELSON MFG. CO. 250 FIRST STREET, SAN FRANCISCO, CAL.

Vessel H.F. McCormick — May 1st 19 26

To H.H. Batt

H.F. McCormick A-La

Safe arrival mark hop to Honolulu Best

Luck on return

James Ruff

2:10 P

At top is the bill Batt received from steamship company. Below it is kidding radiogram sent to ship by friends.

for our motion picture assignments.

That was May 1, 1926, the day that I learned flying's primary lesson—don't try to fly "over your head!" Fog blanketed the mountains and valleys south of the Tehachapie, that saw-tooth range that divides northern and southern California. Jerry Phillips and Slim Maves wisely decided to wait at Bakersfield for a clear day. Ungar waited with them, but I was anxious to get to Hollywood and sign with the studio for all of us. Matlock and Osborn chose to accompany me in the Standard.

I climbed to 5,000 feet and found the fog was right up to the top of the range. Two men in the front cockpit were too many for the old ship to take over the top so I landed beside the highway at Lebec, altitude 4,500 feet, and unloaded Osborn to take a bus. Matlock and I rode up to 5,000 feet and headed south.

My plan, lacking a compass, was to fly as nearly due southeast as I could, using the late afternoon sun on my right as a guide. One hour, I figured, would put us over the Los Angeles valley where I could find a hole in the soup, drop to a few hundred feet and hedge-hop home. I had perhaps a half-hour reserve gas supply and thought—foolishly—that it would be enough.

At the end of the hour we were still cruising on top of a thick, fleecy white fog bank with not a hole in sight.

"Here goes!" I said to myself, and kicked into a spin.

Yes, a spin! The Standard was the slowest spinning ship of its time, descending even slower than a parachute. My idea was to go straight down as slowly as possible in case of a crash; at the same time I was afraid of a long glide or even a wide spiral because of the mountains that surround Los Angeles.

Every turn was slow, agonizing torture. A thousand feet checked off the altimeter and still nothing but mist. "This is it," I'd say to myself over and over. "This is it for sure . . . the next turn, maybe . . . or the next . . . and a mountain reaches up and grabs you, Batt . . . you should have waited in Bakersfield . . . you won't leave any widow but Matlock will, and a two-year old son . . . on the next turn . . ."

We went down 3,000 feet in what seemed as many hours. The Standard waved its tail in circles and let us down like a slow freight elevator. Some of the hills around Los Angeles are 2,500 feet high.

Matlock saw the whitecaps first.

"Water . . . water . . . water!" he shrieked, waving both arms at me to pull out of the spin. I leveled off at about 2,500 feet and looked around for the shoreline. There wasn't any—we were out of sight of land.

A quick glance at the gas gauge and I swung in a tight vertical until the tail was into the setting sun. By heading straight east and throttling back until we'd barely stay in the air, we'd make the gas last—I hoped—to take us within a few miles of shore. After that . . . well, maybe someone would sight us going down . . .

Spider sensed what was wrong when I cruised the motor so slowly. We sat there grim and silent. Ten—20 minutes dragged by and still there was no sight of the white line of surf that would mean shore and safety. Suddenly I thought Spider had gone mad. He flipped off his safety belt and started climbing up on the center section, pawing wildly to the north.

A ship! There, about 15 miles away and with her fat stern toward us, was a waddling lumber schooner! Our only hope was to overtake it. I gave chase and motioned to Spider to peel off his sweater and wave it in the hope of attracting the lookout's attention. Wing-walking was Spider's profession—it was no trick at all for him to stand upright on the center section and wave his jersey. That was our only hope. I'd gambled on reaching the ship when I abandoned my course for the shore. If we didn't, or if we ran out of gas and went down before we were sighted—I tried not to think of it.

The motor gave a last gasp and quit—out of gas. The silence was like a blow but the ship was closer and we could still glide several miles.

After the torturing spin of half an hour ago and then the shock of finding ourselves far out at sea, the sight of that freighter affected me like a tonic. Spider, even after the motor died and the ship settled into the longest glide I could manage, had maintained his stance on the center section, brandishing his sweater like a prizefighter's second waves his towel between rounds. He had been calmer than I before this, but now he began to get excited.

"Holler, Spider, holler!" some imp of humor prompted me to shout at him.

"Ship ahoy!" he shouted. "Ship ah-o-o-o-y . . ." at a wallowing lumber boat all of ten miles away! He made me apologize later for laughing.

Matlock was still waving his sweater when we hit. The wheels caught the crest of a wave and down went the nose. I breathed a prayer. As I write it now it doesn't sound very reverent, but at that moment it was voiced with all the sincerity in me.

"God—this is Howard," I whispered.

The last I saw of Matlock he was sailing spread-eagled through the air, holding his sweater like a ballet dancer's scarf. I kicked out of the cockpit and poked holes in the fabric of the fuselage with my toes to climb toward the tail, which was sticking straight up. I got a precarious hold and looked around for Matlock. I knew he was a good swimmer but I wanted to shout at him in case he became confused and couldn't find the wreck in the twilight.

For the second time I thought he had gone mad. He was head and shoulders out of the water and still swimming like mad—straight up! His face was purple and I saw that he was holding his breath to the bursting point. Then I saw what was wrong.

"Blow, Spider, blow!" I shouted. "You're okay . . . blow!"

"Whoosh!" he let go all that pent-up breath, then jerked off his goggles and threw them toward Japan. You see, they were full of water when he came to the surface. When he opened his eyes he thought he was still under water. He had been trying to swim right out of the ocean, holding his breath, all the while I was climbing the tail of the plane!

We could only hope that the lookout of the ship had seen us go down, or that he'd glance astern and see the tail of the plane sticking out of the water before it sank. Hopefully we watched, but the ship gave no sign of changing its course. We could only wait. We waited two hours. Each time the waterlogged plane rose on the crest of a swell one of us would peer toward the vessel. Each time it was farther away. After a while we began to lose hope. We took turns diving down and trying to wrench a tire off the landing gear. We had no tools, just our bare hands. We hoped to take the inner tube from the tire to keep us afloat when the plane sank. That hope vanished too, when our hands became so torn and bleeding that we had to abandon our efforts. It was almost dark, when . . .

"The ship—look!" Spider shouted.

It was swinging toward us. Spider and I slapped each other on the back and performed as close to an Indian

(*Continued on page* 89)

THE Man UNDER THE Hood

THE Japanese still are after all the American aircraft they can get . . . latest purchase in this country is a **Douglas DC-4** for the national airline, Japanese Air Transport . . . the DC-4, as delivered to them, will be a fully equipped airliner . . . what it will look like after a month or two in Japan is something else again . . . American manufacturers have been unpleasantly surprised a few times recently on discovering the use to which their airliners actually were put by the Japanese . . . although the Japs specified and got complete airliners, they no sooner got the ships to their native land than they immediately converted them to bombers to be used against the Chinese . . . that happened to a fleet of elaborately outfitted **Lockheed** "14" airliners, much to the consternation of the Lockheed company . . . we wonder whether the DC-4 will be made the victim of a similar Japanese trick. . . .

* * *

An interesting development that should do much for aviation is a "dynamic suspension" system for mounting engines with which the **Army** has been experimenting for some time . . . test engines have been mounted on a bomber . . . the device uses rubber shock absorbers on the engine mounts in much the same manner as automobile engines are mounted today . . . big-plane manufacturers already are installing the system on their new production models. . . .

* * *

The long-idle **Barkley-Grow** company is said to be planning the construction of a light twin-engined military ship which, when finished, will be taken on a demonstration tour of South America . . . the **Barkley-Grow** firm, you'll remember, is the designer of that novel and successful type of wing construction similar to Britain's geodetic construction.

* * *

We hear that **Gar Wood**, the veteran speedboat racer who is one of the greatest boosters for private flying in the country, had something to blush about the other day . . . he owns and flies (himself) a sleek twin-engined Grumman amphibian . . . he was out on a trip recently . . . he was bringing his flying yacht in for an airport landing . . . everything went fine until the ship touched the ground . . . there was a scraping noise as the ship slid to a stop . . . the blushing **Wood** had forgotten to lower the landing gear. . . .

* * *

Usher Rousch, the former airline pilot and an officer of the Air Line Pilots' Association, is flying a tri-motored sightseeing ship out of Chicago airport these days . . . Rousch is the man who landed a big airliner on its belly in a Newark, N. J., swamp after getting tangled up in some unexpected bad weather . . . his landing was so good that the ship was only slightly damaged and no one was even scratched. . . .

* * *

The story now is that **Howard Hughes** has sold that high-powered racer of his to **Vance Breese**, the famed test pilot . . . that's the ship in which **Hughes** broke several speed records, including a coast-to-coast flight of slightly over seven hours . . . it's rumored that **Breese** plans to work the ship into a military design to offer to the **Army** . . . by the time you read this he may have flown it in the transcontinental Bendix Trophy Race. . . .

". . . Say, Trip Seven . . . near as I can figure your position you're somewhere over by the ash tray . . ."

* * *

Earl Ortman, the lad who flies very fast when the occasion arises (he has an article elsewhere in this issue), wants very much to get married . . . it is for this reason that he might possibly go back to racing in his spare time—despite his article on page 27 . . . providing, of course, his boss at **Canadian-Colonial Airways** approves the idea . . . airlines usually don't like to have their pilots linked with "reckless" flying projects. . . .

* * *

If the nation's whole aviation industry ever gathered at any one place at one time, it was at **Wright Field** the day the Army celebrated the 30th anniversary of the purchase of the first military airplane from the Wright brothers . . . inasmuch as Wright Field is the heart of all the **Army's** highly secret aviation projects, there was an air of expectancy and wonderment on the part of those aviation personages who attended . . . particularly after the appearance of the German and Italian aviation attaches as "official observers" for their respective countries . . . but the **Army** covered up any secrets beautifully . . . occasionally, though, unfortunately curious spectators were able to hear the rapid hammering of what most aviation people believed to be a 37 mm. new model cannon for aircraft . . . similar to those installed in the **Bell** *Airacuda* . . . the gun was being fired on the Wright Field test range—which was closed to visitors . . . meanwhile, the attending public was invited to look over the many types of aircraft already in, or just contracted for, the Air Corps . . . the **Curtiss P-37** with the 1,000 h.p. Allison was open for inspection . . . but the **P-40**, with that 2,000 h.p. Allison, was nowhere to be seen—except the one time it roared over Wright Field at lightning speed . . . presumably on to nearby Patterson Field, where the *Airacuda* also was secreted. . . .

* * *

The British, who started out with fixed-pitch, wooden propellers on their hottest fighters—the Hawker *Hurricane* and the Supermarine *Spitfires*—are now putting on American Hamilton-Standard constant-speed metal props . . . most of the world's propeller manufacturers are working on lighter hubs that contain the blade pitch changing mechanism . . . the lighter hubs, they hope, can be used with wooden blades . . . would make a very large saving in weight and cost of blades.

* * *

A man called **TWA** ("The Lindbergh Line") in New York the other day and asked for **Mr. Lindbergh** just to see what answer he'd get . . . haughtily, the telephone operator came back "I'm sorry, Mr. Lindbergh is no longer with us" . . .

* * *

There is almost surely to be an exodus of aircraft factories inland toward the center of the United States in the near future . . . reason is that the government, in connection with the letting of certain contracts for aircraft, has requested certain west coast and east coast manufacturers to get their major plants inland where they won't be so vulnerable from the air . . . certain factions have been whooping it up for **Chicago** as a site . . .

* * *

Intelligence officers of the War Department were in a lather the other day . . . a foreign aviation publication came out with three-view drawings and a complete table of performance figures on a highly "secret" twin-engined fighter now being built for the Army . . . we hear they've even got the FBI looking into it now. . . .

END

Above are the slots built into the wings of the Lockheed "14".

SLOTS
Are Here To Stay

by KURT RAND

HAILED as the most sensational advance in airplane design in years because of the added safety they contribute to flying, wing slots, long in the discard, are coming back today. Chances are, according to leading engineers, the "new" slots will be used on even the lightest ships used in private flying and training.

Developed by Lockheed engineers when the fast "14" revealed a tendency to wing-tip stall with a resultant loss of lateral control at high angles of attack, the no-drag, built-in wing slots have aroused the interest of the entire industry.

Douglas Aircraft has already tested the new slot and is going into production with an installation on one of its models. Five other leading manufacturers, producing commercial, private and military airplanes, have requested full performance details.

Lockheed officials are so pleased with the performance of the slots that they plan incorporating them on all future models.

The extensive tests, run over a period of months by Hall L. Hibbard, vice-president and chief engineer of Lockheed, and Rudolph Thoren and C. L. Johnson, flight engineers, revealed many advantages and no disadvantages.

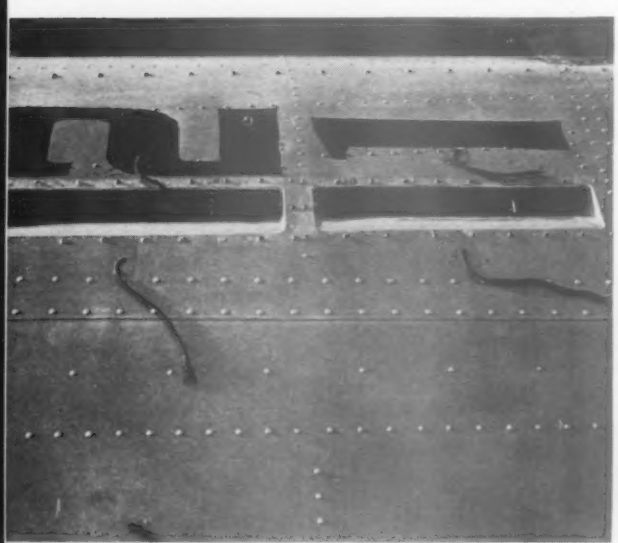
The primary improvement was the elimination of the wing-tip stall.

"Our objective," Hibbard declared, "was not only to control the turbulence or burble on the upper surface of the wing, thus eliminating an abrupt loss of lift, but to hold the air stream to the upper surface of the wing so that the ailerons would operate effectively, thus assuring lateral control and balance.

"This objective was reached almost immediately. In casting around for a form of slot it was necessary to discard the conventional leading edge slot arrangement. This was because of the pulsating type of de-icing equipment necessary to all types of all-weather operations. Such equipment could not be installed on a movable leading edge which rose away from the wing to form a slot at high attack angles.

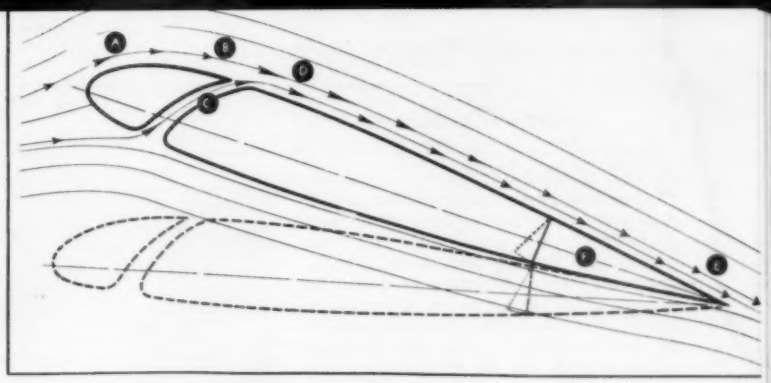
"In a series of conferences which included C. L. Johnson, chief research engineer and flight engineer, Ward Beeman, aerodynamist, and myself, we developed a fixed slot. There are six fixed slots, each 22 inches long, built in tandem, extending from the wing tip toward the root of the

To test airflow over wing from slots, engineers installed strands of yarn whose movements were photographed in flight.



Here is Lockheed wing being tested in flight. Note wool yarn, instruments and date. All are photographed for true record.

You will see built-in slots on most airplanes before long. This is the story of the return of slots to aviation, how they increase an airplane's safety and what they mean to the future.



How the slot works. (A) is high speed air, (B) is air slowing. Air speeded by slot (C) returns to velocity (D and E), insures aileron control (F). Thus pilot has control of ship below stalling speed.

wing just back of the leading edge. These slots are directly in front of 60 per cent of the ailerons on both wings. The idea of a continuous slot was not considered because of the resultant weakening of the wing itself.

"We surprised ourselves in that the first design, without experimentation, met the problem. Subsequent tests showed that these inexpensive slots, taking no strength from the structure, having no moving parts and possessing the additional attribute of very low installation cost, were more than satisfactory."

An air speed bomb, motion picture camera, threads affixed at intervals to the upper sides of the wings and outboard instruments were used in conducting the flying tests which followed.

"We discovered almost immediately that we had established a stall warning," Hibbard continued. "With the slots giving outboard control, the turbulence in stall approach began at and close to the root of the wings. This turbulent condition was communicated to the dual tail. This resulted in slight vibration which served as a warning that the ship was getting close to a stall. But there was absolutely no loss of lateral control. The ailerons functioned perfectly."

Hibbard gives credit for the development of the slots to Johnson and Beeman, who worked with him.

"Another objection to the conventional lifting slot," he declared, "in addition to the fact that de-icing equipment installation was impossible, was that this type produces a high drag due to the disturbance of air at the leading edge. Johnson, Beeman and I therefore set the slots back far enough so that this drag was eliminated."

The reduction of drag was proved in the subsequent tests. The big Lockheed "14", rated as the world's fastest commercial airplane, showed a loss of only two miles an hour at its top speed of 250 m.p.h. and no loss whatsoever at the cruising speed of 225 m.p.h. Stalling speed was slowed four miles an hour.

"We were not particularly interested in slowing the stalling speed," Hibbard explained. "The problem was not in this but in the characteristics which developed at stall; that is to say, the loss of lateral control. With control maintained, our objective was accomplished."

Hibbard, in telling the story of the slots, said that they were immediately available to all aircraft manufacturers. This is due to the fact that no-drag slots of a similar type were patented by G. V. Lachmann (a German scientist now living in England) in 1919. The slots were installed on ships of the period but were discarded apparently without performance checks. Hibbard's experiments led him to develop the Lockheed type without knowledge of the existence of Lachmann's experiments. Lachmann had allowed his patents to expire.

The result is that now the slots are unpatentable due to priority and that they are available to anyone. According to Hibbard, the interest in them is increasing almost daily. He said:

"Because they are inexpensive I believe they will be used widely. I feel that they definitely improve any airplane on which they are installed. This goes for the lightest of planes as well as for the transport types. In lightplane installations the slots would be made smaller in proportion, but they would retain their efficiency."

Hibbard pointed out that there was no loss of flying speed in normal flight due to the fact that the test showed that at low angle of attack, high speed conditions or cruising there was practically no flow of air through the slots.

Lockheed's subsidiary, Vega, now is running tests on its new *Starliner*. Lockheed not only is equipping all "14's" with the device but is planning its incorporation on all future models.

END

Lockheed's photographer, J. H. Washburn, makes movie record of slots' performance during a test flight. Picture he got is that at lower right on the opposite page.

Absolute true air speed is carefully calculated on test flights with this "bomb."

New Radio

DIRECT "finger-tip" control, reduced maintenance, and economy of instrument-panel space are advantages in a new radio receiver for all types of flying currently introduced by the Western Electric Company. In the new device, all radio frequency elements together with switches, dial and control knobs are centered in one small housing which mounts on the instrument panel within easy reach of the pilot. This unit connects, electrically, with a second cabinet, which may be installed in the after part of the ship and which contains all audio frequency apparatus and the power conversion equipment.

This construction enables the pilot to shift between various incoming frequencies with the same ease and precision as though the entire receiver were mounted on the instrument panel as a single unit. All mechanical remote control gear is eliminated, together with its maintenance problems, and in addition, a distinct gain in overall operating performance is achieved.

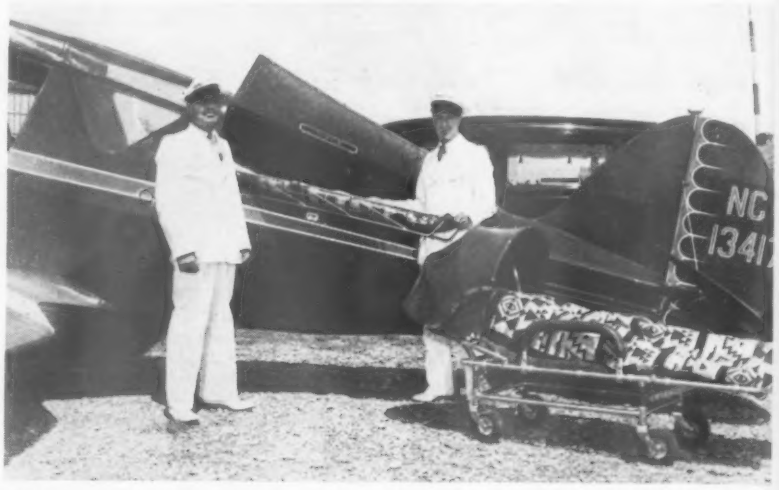
With the new receiver, the pilot has a choice of three frequency bands. By operating a simple rotary switch he may select Civil Aeronautics Authority beacon signals and weather reports; international distress signals and most commercial broadcast bands; and the regular aviation communications band. The same switch gives the pilot crystal control on any two previously selected frequencies in the communication band. Because the navigational value of the beacon signals is impaired by the operation of the automatic volume control, this switch also automatically disconnects this element of the circuit when the receiver is tuned in on the beacon band.

Although the installation weighs but 16 pounds, its sensitivity and overall utility compare favorably with larger types of aircraft receivers. The radio frequency control-unit which weighs four pounds three ounces, measures 7⅝" wide, 5⅛" high, and 4¾" deep which is suitable for all-round aircraft work.

Purdue Wins Award

PURDUE University's college flying team of Ray Chevedden and Bob White won the first annual award of the United Air Lines Safe Flying Trophy at the National Inter-College Flying Club meet at Kenyon College, Gambier, Ohio. Duke University was second and the University of California third. The trophy has been announced as an annual award by United, as a part of that line's campaign to promote safe flying. The trophy will go permanently to the team winning it three times in succession, after which United will put up another trophy for the continuation of the award. Maj. R. W. Schroeder, vice president of United in charge of safety, went to Gambier to make the presentation of the trophy.

Aerial Ambulance



THE cabin Waco is owned and operated (quite successfully, we understand) by a Lewiston, Maine, undertaker. He is Donat Fortin (right) shown here with his assistant, Roger Roderick. Although Fortin's particular use of the airplane is an unusual one, it is nonetheless a highly practical one, especially in the territory in which he operates. He owns a chain of five undertaking establishments throughout the state of Maine. The majority of his clientele is French-Canadian, hence he does a good deal of business in Canada as well as in the United States. Many Canadian ships are used this way.

Peru Buys U. S. Warplanes

WITH the popular Douglas (Northrop) A-17A released from the U. S. Army Air Corps restricted list, the Douglas company has commenced a somewhat lively export business with this model. The ship below is one of 10 recently delivered to the Peruvian government. The Peruvian airmen standing in front of the ship were photographed during their visit to the Douglas factory to take delivery of the last three ships in the order. In flying the trio of speedy attack-bombers back to their homeland, the Peruvians established a new cross-country record for military aircraft as well as a new non-stop speed record between Panama City and Lima. They flew from Los Angeles to Lima in a total flying time of 24 hours and 45 minutes. From Panama City to Lima they averaged approximately 250 m.p.h. Meanwhile, several of this type airplane (known as the 8A-3P) also have been sold to the Netherlands.

AIRCRAFT OWNERS AND PILOTS ASSOCIATION

AOPA NEWS

By GILL ROBB WILSON

Probably the biggest breakfast flight in history was held jointly by the AOPA and Wisconsin Civil Air Corps August 13 at Curtiss-Reynolds Airport near Chicago. Above are some of the 101 planes present; 302 breakfasts were served, 5 states represented.

CONGRESS adjourned without doing anything about the national airport program. Anyway national defense, mail distribution and air commerce will dominate the airport picture when it is considered. Private and miscellaneous aviation must think its way out by some other route.

A year from now there will be almost double the number of pilots if plans work out. They will not be living near large commercial airports. If we wait for airport development we will not hold many pilots in the certificated ranks. What to do? How about tackling it from this angle. Let's forget the airports for a while. Let's concentrate on getting aircraft developed for private and miscellaneous aviation which do not require airports. Airplanes which can land anywhere—on beaches, ten acre lots, highway strips, ball parks. Let's set out to bring the airplane nearer home than the big airport.

The manufacturer can reduce costs when he can count on production. He can count on production when he can produce an aircraft that has great utility. The farm boy, the lad in the village, is the greatest potential market. Every farmer has a couple of airports right back of the barn. Every village can supply a lot for the home town boys.

Well, what will it take? Nothing impossible. An airplane that can land at 25 m.p.h. in 500 feet over a 50 foot tree, cruise at an honest 100 m.p.h., take off fully loaded and clear the same tree it came in across, handle well on the ground, be easy to inspect and service, won't stall with controls at full redress position and will not fall off into a spiral or spin from a near-stall position. That kind of an airplane is in the cards right now and it will come out when we help the manufacturers get some assistance in producing it.

I can't let the cat out of the bag just yet, but the AOPA is in there pitching and things are looking mighty hopeful. We don't need a foolproof airplane. There are no foolproof bathtubs or step ladders or revolving doors. Let's just have a plane that proves you have to be a fool not to own it. It can be done and it will be done. That's one way to settle this airport question for miscellaneous aviation.

I'm for Texas

A letter from a swell corn-fed lass down there wants to know what are the privileges of membership in the AOPA. The best I have been able to figure out, that question boils down hot and sweet: just a lot of hard work for a good cause. There does not seem to be anything to vote about and no politics and no careers to nurse and no jobs to be built up and no insurance or airports to be sold. Just doesn't seem like there was any aviation about the darn thing, does it? No Ma'am, I can't see any loose privileges on the range except maybe the same kind of privilege your Grand-dad had when he teamed up with a lot of other solid people to make Texas and Texans the grand place and people they are today.

But I'm Interested in Privilege

Born in a log house and used to get my boots half soled for Christmas . . . when times were good. I'm sure interested in belonging to the privileged class. I never admitted it before, but that is why I am in aviation. I like the privilege of comradeship with the finest lot of people on earth. I like the privilege of helping to build new frontiers and beating down isolation and the tragedies of time and space. It's a wonderful privilege to have near a quarter century of memories of ships and men and joys and heartaches all so mixed up together a fellow hardly knows how to evaluate it except by being eternally grateful to aviation. I just crave one privilege more . . . going on and on and on with folks who feel wind and sky and stars in their soul and have an earthly smell of 87 octane about 'em. That's all AOPA is about . . . just a lot of pilots hooked up to make life count by a common effort. The three bucks is just axle grease like your Grand-dad used.

Bulletin Five

. . . is a prosaic-looking little blue book, but wait till you see what's inside. Before you get liquidated as an instructor you had better digest Bulletin 5. It is the new Instructors Manual. Dick Boutelle handed me a copy with an expression like I imagine Moses had when he passed down the Ten Commandments. I hope Bulletin 5 has better luck than the Commandments, but they have points of similarity: they cover the subject, were badly needed, arrived opportunely, are in some respects revolutionary but chiefly evolutionary, will divide the sheep from the goats, metaphorically speaking.

Seventy-one per cent of the crack-ups for the last six months are recorded as pilot failures. Beyond doubt, there has been a lot of inadequate instruction. Some men are just not born to teach although they may be truly fine pilots. The new instructor's rating will wash some of us out. It's going to take a fine type of courage and spirit for an old hand to accept the decisions. But that is one way to show the stuff we are made of. If Len Povey and his boy friends just creep up on us gradually and let the old dogs have a chance to learn the new tricks, all will be hunky dory. The spirit in which the thing is done will be the measure of its success.

AOPA will back standardized instruction because it is for the good of aviation and congratulates the men who composed the Manual. It's a fine piece of work.

Better Tie A String on Your Finger

The CAA has announced that no more advance notice of certificate expiration will be sent out for aircraft or airmen. The AOPA has asked the CAA to reconsider that decision and continue the present notices. The move was made as an economy measure and would save CAA about $7,000, they figure. AOPA figures it would result in piling up work on the inspectors in the field, giving new flight tests to men who forgot the date and let their certificate lapse. It would also wash a lot of busy men out of aviation because they would not want to take the time to brush up for a fresh test so they would let the certificate lapse permanently and maybe sell their ships. The advance notices are a constructive service and AOPA feels the

CAA will be glad to continue them when they know how much appreciated they are by the pilots. No use pulling the tail feathers out of the sparrows to make an eagle's nest.

The Sportsman's Pilots Association . . .

. . . does a grand job. Their cruises are outstanding examples of flight utility and they are a real morale builder in miscellaneous flying circles. (If AOPA can help you because of our continuous professional service just say the word, Henry King.) We hope their numbers increase and have more fun and comradeship each succeeding year.

AOPA Boosts Air Progress Observance

The NAA is sponsoring Air Progress Week, September 11 to 24. The program calls for aviation programs at civil clubs, schools, veterans' posts, chambers of commerce, etc. AOPA asks every pilot to make a special effort to get in the air during that period, to spark plug his community. A number of Operators are planning to give free "first rides" during the observance and AOPA requests its membership and friends to see how many first rides they can privately promote for air progress. Give the NAA the very best help we can. Just to show you how these two outfits pull together, Charley Horner made me chairman of Air Progress Observance Week and I made Charley a promise that AOPA would go to bat for the show. Air progress has no money to make a big splurge, but we will do the best with what resources we have and spirit will make up for lack of sheckles.

Negative Thinking

. . . is the path of least resistance. We bemoan accidents, but do not reward safety. We yell about safe airplanes then park them in the dust, wind and rain. We teach pilots to spin but they don't know a stall from a Nebraska steer. We build big airports and use half of them for take-off. We have log books the size of a postage stamp to keep the history of a ship and motor that cost thousands of dollars. Oh well . . .

I Crack One Up

While taxiing the other day I felt the right side of the landing gear start to buckle. The landing gear "V" had been cracked and welded previous to my ownership. I knew that. I knew the member was a heat-treated one and I did not know whether it had been re-heat treated following the repair. Now it failed structurally and investigation showed it was badly crystalized. Did I have brains enough to take the fairing off and look at the thing now and them? Not I! That mishap will go into the books as a structural failure, but I made that failure possible. Eternal vigilance is one of the real rewards an individual gets from flying. But the vigilance must extend beyond the flying.

Three Questions To Ask

Would it not be a good idea to have all heat treated members plainly so marked at the factories?

Would it be a good idea to have the repairmen make log book notations of the fact when they have been working

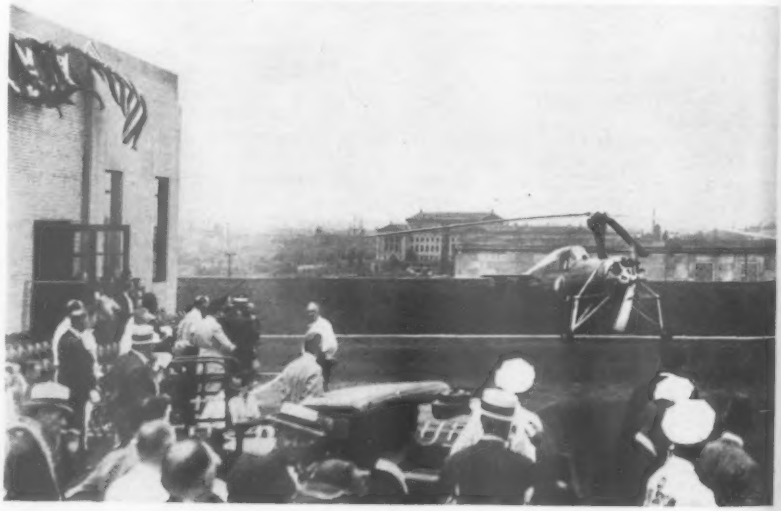
(*Continued on page* 85)

Mt. Rainier, Straight Down

THREE Washington National Guard flyers were so fascinated by the sight of Mt. Rainier as they flew directly over it on a routine high-altitude training flight, they turned back and photographed it. The resultant picture, shown above, is one that had never been made before. Geologists, mountaineers and weather observers declared the picture to be of unusual value to them. The plane, a North American O-47A, was flying at 22,000 feet when the shot was made. Mt. Rainier's peak officially stands at 14,408 feet. The flyers, Lieuts. E. C. French, Lloyd Hardesty and Private E. Saltz, used a regulation Fairchild aerial camera. Lieutenant French commands the 116th Observation Squadron.

Autogiro Flies the Mail

THE first time an autogiro landed on the roof of a post office, the feat was 90 per cent stunt and 10 per cent business. Today, thanks to a Post Office Department contract, the situation is reversed. The Kellett autogiro below has just landed on the roof of the Philadelphia post office to inaugurate a daily service that is expected to spread to other major cities throughout the country. Eastern Air Lines is the world's first airline to get such a contract. That line receives $3.86 per mile and the route between the Philadelphia post office roof and Camden, N. J. airport is flown at the rate of five round trips daily, except Sundays and holidays. Pilot is Johnny Miller who once was test pilot for the Kellett company. The ship itself has been especially adapted for its roof-top mail duties. While top speed is 125 m.p.h. it can land at anywhere from 25 m.p.h. to zero. It takes off in from 30 to 300 feet and can carry 150 lbs.



the NATIONAL AIR BOARD Says...

Dr. Alexander Klemin, Chairman

THE CAA flight training program has been highly successful and there is every indication that this activity is likely to be of benefit to national defense, to American aviation as a whole and, in particular, to private flying. There is, however, the question of what might be called carry-over". Now that these young men have soloed and in the most cases received their private flyer's certificates, what can they do next to maintain and extend their knowledge of the art and to enjoy all the useful and pleasurable possibilities of private flying?

Dr. Klemin

To answer this question the Air Board called to its 28th meeting eminent authorities covering various phases of the subject. Those present as guests included Philip Michel, who had recently completed the flight training at New York University and who was one of the 300 "guinea pigs" of the experimental program; A. F. Hundertmark of the Luscombe Airplane Company, H. A. Schaffer of Interstate Credit Corporation, an authority on the financing of lightplanes; Gordon Curtis, equally prominent in the financing field, Fred N. Davey of Aero Insurance Underwriters; and Henry Beers of the United States Insurance Underwriters.

A Message to Grove Webster

Earl Southee, in opening the discussion, voiced a word of warning. He thought that, with some 330 men trained in the last school year and some 15,000 to 20,000 men trained in the next three or four years, an artificial stimulus might be given to that section of the aviation industry which is concerned with private flying and the boom might be followed by a slump. Mr. Michel was a little apprehensive that the young graduates of the program might have no further opportunities for flying and result in an unwieldy number of inexpert pilots.

Neither Casey Jones nor Captain Richard Depew shared these pessimistic views. The only serious defect that Captain Depew saw in the last year's program was in the competitive bidding of the training schools, and in the low prices at which instruction was given. He expressed the belief that instruction given too cheaply is bound to be, ultimately, inefficient instruction.

Informal but searching discussion of these views led to a unanimous vote on an open message to Grove Webster, Chief of the private flying section of the Civil Aeronautics Authority. The message to Mr. Webster embodied specific recommendations:

1. The CAA program should be continued.
2. Opportunities should be given to graduates for continuing their flight training after receiving their private license.
3. There should be no competitive bidding on the part of the fixed base operators.
4. Fair rates for instruction should be fixed without competitive bidding.
5. The work of instruction should be spread around as much as is consistent with efficiency and geographical location of the colleges concerned.
6. Some consideration should be given to the already established fixed base operators, who might otherwise be superseded by newcomers who have not borne the brunt of hard times.

Can These Young Men Finance the Purchase of Lightplanes?

Most certainly yes, in the view of Gordon Curtis. Financing arrangements for purchase of lightplanes costs but 1 per cent more than financing arrangements for purchase of automobiles. Gas station attendants, barbers, switchmen, people of incomes ranging from $125 to $150 a month have found it possible to finance cooperative purchases and are having a splendid time. Mr. Curtis cited the successful formation of small clubs comprising not more than 10 men. He gave one serious warning, however. Two bad "eggs" in a club, who indulge in reckless flying and exhibitions, might ruin the whole enterprise.

E. B. Wilford

Mr. Schaffer was equally optimistic regarding the financing of club ventures for which plenty of money was available. He saw no danger of overproduction. The CAA program would be a tremendous boost for the lightplane industry. Private planes were safe enough, he pointed out, but there should be rigid enforcement of regulations and particularly careful control at the airports.

Can Lightplanes Be Insured?

Mr. Beers pointed out that there was keen competition in the aviation insurance field. If only there were rigid enforcement of regulations, he said, rates would go down steadily. Mr. Davey said that the prevailing rate was 10 per cent per year. In the first year this rate proved quite expensive to the underwriters. Now loss ratios were much better. If instructors were first class, approved by the insurance companies themselves, and if young pilots took flying seriously, insurance rates might be reduced to as low a

(*Continued on page 74*)

New Pilot Ratings

AS the first step in a general program designed to increase safety in the future training of all student pilots, the Civil Aeronautics Authority has announced that all airmen now holding flight instructor ratings in the United States must familiarize themselves with new standardized methods of instruction developed as a result of the Authority's flight training program in the schools and colleges of the country, and be rerated before October 1st as to their competency to give flight instruction. More than 4,000 pilots in all categories will be affected.

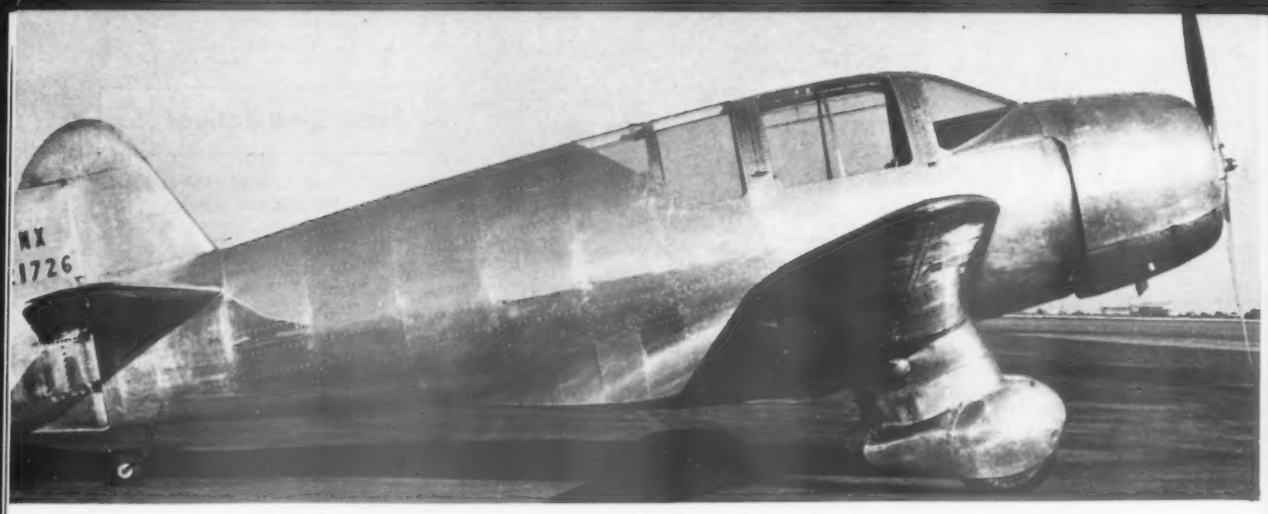
This move is in line with the Authority's frequently expressed concern over the high accident rate that has hitherto prevailed in private flying. It is a direct result of independent research in this field by the Private Flying Development Division and other branches of the Authority, and of a series of recommendations recently made to the Authority by the Air Safety Board following its study of 627 accidents during the calendar year 1938 involving the three types of light aircraft used most extensively in this country for instruction and private flying.

Cooperation

UNITED AIR LINES, to show its willingness to cooperate with private flyers throughout the country, recently announced that it would extend the use of its facilities to private pilots at any station along the airline's New York-San Francisco airway. According to United's president, William A. Patterson, complete cooperation in supplying weather information, hangar service facilities and other services wherever possible would be extended to private flyers. Where other facilities are not available, hangar space will be available for private airplanes at reasonable rates. The airline will sell gas and oil at airports on its system that do not have a regular airport concessionaire offering that service. Private pilots also have been invited to have mail or telegrams addressed to them care of any United airport or office. In addition, pilots may have access to the airline's telephones and other local facilities.

New Zealand Line

REPORTS received by Imperial Airways from New Zealand indicate that the preparations for the terminal for the England-to-New Zealand air service, to be inaugurated later this year, now are complete. The administrative building at Mechanic's Bay, Auckland, has already been occupied by the meteorological staff which is installed on the top floor of the building, and is equipped with the latest instruments necessary for the weather services peculiar to the needs of long-range trans-ocean aviation. No date has been set for the line's opening.



This sleek monoplane was designed and built by Rudy Paulic, United Air Lines flight engineer, in his spare time. Based largely on the T-5 trainer built by the Boeing school, it has a 125 h.p. Warner.

★

HAVE YOU SEEN ?

This picture of rarely photographed Jap warplanes shows them in Manchoukuo. These fighters closely resemble the Italian Breda.

New York City's rejuvenated aerial police force recently took delivery on this special Stinson for patrol flights.

This Douglas attack-bomber, similar to the Army Air Corps' A-17A, is one of 18 ordered by the Netherlands government. This export model generally is like its Peruvian counterpart on page 52.

Said to be the world's fastest trainer is this British Miles "Master," recently put into production for the Royal Air Force. Its 715 h.p. engine gives it a top speed of over 250 m.p.h.

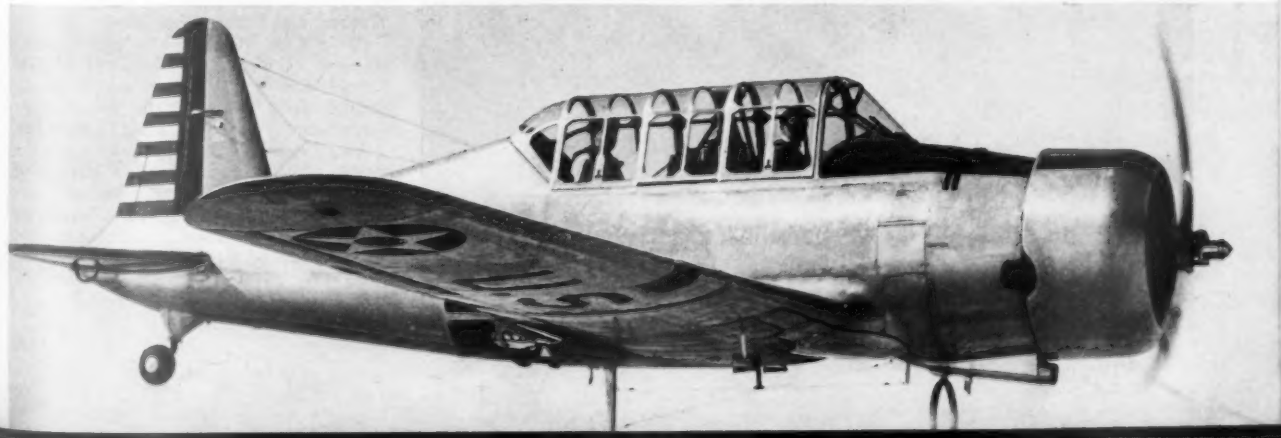
This is the first photograph of the Douglas DB-7, 150 of which will be built for France at a rate of three a day.

One of several new types of primary trainers recently ordered by the Army Air Corps is this Waco YPT-14 biplane.

★

Naval fighter squadrons soon will be equipped with Brewster F2A shipboard fighters like the prototype shown above.

Latest Vultee type is this basic combat monoplane, some of which have been purchased by the Army. It is expected that this design also will be exported under the name "Valiant." Top speed is over 200.



The finished model is as graceful a sailplane as its big brother counterpart.

THIS MONTH'S MODEL

by PAUL W. LINDBERG
Model Editor and Designer

THIS month we have departed from our regular line of gas models and present a soaring model which will give you many interesting flights. The accompanying photos of the model will give you an idea of its trim and graceful appearance. The model measures 61 inches from wing-tip to wing-tip, with an overall length of 23 inches. The color scheme is canary yellow trimmed in light green. Details are in black. Plans may be enlarged to any size that you may desire by using an ordinary pair of dividers.

Construction of Fuselage

The builder has an option of two types of fuselage. Either fuselage built up with stringers and tissue covered, or a fuselage covered with thin 1/32-inch sheet balsa. The latter is a good deal more efficient, as skin friction is far less than that common to the paper-covered type.

In constructing the fuselage, build the keel or backbone of the fuselage upon a flat surface. After this has become thoroughly dry, the formers which are cut from 1/16-inch sheet balsa wood are cemented in their respective positions. The nose piece is carved from solid balsa wood and sheet balsa wood is covered between nose piece and former No. 2. Stringers are made from 1/32-inch by 1/16-inch balsa and spaced evenly around entire fuselage. Sight from front to rear when cementing in position to make sure that they follow the streamlined shape of the fuselage. Thin balsa veneer is used from head rest of cockpit and is faired into fuselage. The landing wheel is clearly explained on the plan. Make the opening in keel large enough so wheel may absorb shock.

The tail pieces, elevator and rudder are built upon a flat surface. They are of the flat section, so no trouble should be had in building them.

Building the Wings

Construction of the wings is a little more difficult than the average model, as the aspect ratio is so high. We might suggest that you secure extremely hard wood for the spars, leading and trailing edges. Ribs are cut from 1/16-inch sheet balsa. The wings show no reinforcement compression struts between the ribs but these may be added if you wish; they are made from 1/16-inch square balsa. To obtain the "gull" in the wing, we suggest that you build each panel in two separate sections and cement them together afterwards. Do not join the wings to the fuselage until they have been completely covered and doped.

Covering the Model

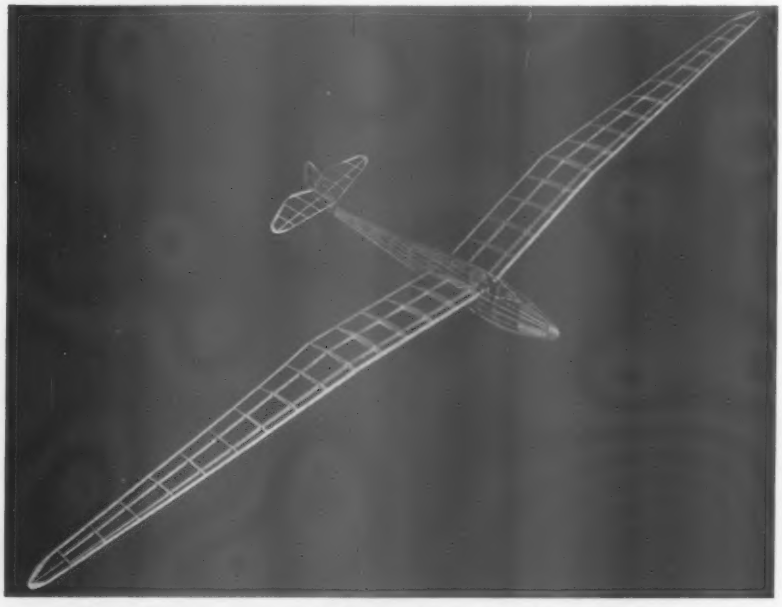
The entire model is covered with ordinary Japanese tissue. A light grade of model airplane dope is used in holding the tissue to the framework. In covering the body, long narrow strips are used, covering two stringer spaces at a time. Do not try to cover fuselage in too wide a piece as it will result in a series of wrinkles. When all parts have been covered, spray with a light coat of water in order to make the covering stretch.

Elevator and rudder can be pinned upon a flat surface so they will not warp. Care should be exercised with your wing panel. Use blocks, so that they might be held in position until thoroughly dry. Two or three coats of clear model airplane dope will protect the tautness. Color coat may be applied after model has been completely assembled.

Testing and Flying Your Model

It will be necessary to add a small amount of weight to the nose of this model in order to balance it. Hold the model directly under the wing while launching. The model, when launched by hand, should glide very gently to the earth. Many soaring models have been lost by encountering uplifting air currents (known as thermals). A launching hook may be attached to the nose so that model may be flown high into the sky with tow string and released after the proper altitude has been gained.

END



Simplicity of construction is the keynote of this model. Note "gull" in wing.

THE SOARER
POPULAR AVIATION
OCTOBER, 1939
STABILIZER
KEEL
SIDE VIEW
FRONT VIEW
TOP VIEW
RUDDER
SHEET BALSA FOR WING TIPS
STRINGERS
DETAIL DRAWING OF LANDING GEAR
LANDING GEAR
STEEL WIRE
WHEEL
SPLICE
CEMENT

"I Fly the Transpacific Clippers"

(*Continued from page* 18)

map shows pretty fair weather all the way. The winds aloft look good—a quartering tail wind for the first 800 miles, and light headwinds from there to Honolulu. There is no disturbance to avoid so we will fly the direct air track, or No. 4. There are eight separate air tracks charted for the Honolulu crossing. We will fly at 7,000 feet altitude. The winds look most favorable at that level and it's a good one for passenger comfort and engine performance.

From the assembled data the meteorological department makes the flight forecast and I check it. Our forecast indicates we will arrive at Pearl Harbor, Honolulu, in 16 hours and 35 minutes. The tanks are loaded with 3,700 gallons of gasoline and 130 gallons of oil. That will give us the five hour reserve and still keep us under the 41¼ ton gross weight. The navigator figures the equi-time point at this time. This is the "point of last return", the last point at which we can turn back and reach our home base with the gasoline aboard. It isn't the same as the half way point, because the equi-time point is based on current wind conditions.

The last thing I do before boarding the plane is sign the official clearance papers and cargo manifests. These papers are just like those used for ocean liners.

One bell sounds! My crew and I march out into the sunlight and down the long walk leading to the dock. There she is, the giant *Honolulu Clipper*, riding easily at the dock—all ready for us, thanks to the many hours of work by maintenance, operations and the many little known departments behind the scenes of a transoceanic service, plus the long years of trailblazing and research and planning by the pioneers.

Two mechanics are on top of the 152-foot wing. They are making a final gas check. That's some of the mail and express on those big hand trucks going down the walk ahead of us. We march up the gangplank, go aboard through the main lounge amidships, march up the aisle past the luxurious passenger compartments and the galley and climb up the spiral staircase to the flight deck. This is the bridge of our clipper. It is larger than the average living room—21½ by 9½ feet, to be exact. That gives every member of the crew plenty of working room and makes for the maximum in efficiency. Notice the deep carpet and overstuffed chairs.

We go immediately to our posts for duty. I slip into the big adjustable chair behind the flight controls at the left side of the ship, the first pilot's post. I glance at the flight instruments on the board in front of me. Surely a far cry from the crowded boards of bygone days. At my right, the first officer is at his post behind the dual set of flight controls.

Directly behind me the pilot-navigator is spreading charts on his big work table and checking over octants and other instruments. Behind the first officer the radio officers are checking over the three sets of receivers and transmitters that will keep us in touch with the mainland every second of the long flight. Behind them the first engineer officer is giving a final look at the instrument board which will tell us what's going on inside of the engines, how much power they're producing, the temperature of the cylinder heads, how much gasoline has been consumed, how much remains, whether there is any water in the fuel tanks and a hundred and one other things about the mechanical equipment. During each half hour he will take 62 different readings. In front of him are the engine controls and synchronizer with which he synchronizes the engines at a given number of revolutions per minute. The second engineer is in one of the walkways in the wing inspecting the engines.

". . . Ever since he saw that airplane he thinks he has to taxi before leaving the ground . . ."

Behind the navigation station is my office, the master's office. It has two big overstuffed chairs. Here I hold conferences with the various members of the crew. Behind that is the bunk room for men off duty. There's another rest compartment in the anchor room below.

Two bells! That is the signal for the passengers to come aboard. They are quickly shown to their compartments. Already their baggage has been stowed away in the holds.

I start the engines, the port ones first, because the gangplank still is down. The engines have been warmed up by the ground crew so I keep them turning over just fast enough so they won't foul.

The ground crew hauls the gangplank ashore. The stewards close the hatch. The signal to cast off! The ground crew releases the mooring lines. I turn the big ship and follow the patrol boat out of the Port of Trade Winds to the selected runway. The clipper has a boat rudder under the hull and she handles well on the water. I follow a channel marked by floating automobile tire buoys.

The patrol boat turns and starts back. That is our point of take-off. I swing the ship around. I run up the engines and with the switches test each spark plug—there are 112 of them—to make sure each is firing perfectly.

The first officer checks the rest of the crew to make sure all are ready. From the lower deck the stewards report all watertight doors secured and all passengers in their proper seats. I flash on the "Fasten Safety Belts, Please" light in each compartment. The engineer says, "Ready!" The radio officer says, "Ready!" From the patrol boat comes the radiophone report: "Course all clear and ready!"

The first officer reports: "Crew and ship ready for take-off!"

I tell him how much flap to set and the propeller speed. At my nod he opens the master throttle full on. The big clipper comes to life. The four engines give out a mighty roar. She leaps through the water. I give her her head. I ease her up onto the step. She slides along on top of the waves. The green water breaks over her stubby seawings. She's getting light. I can feel her throbbing in my hands.

I ease back on the wheel. A last light bounce and she comes out of the water cleanly and gracefully. The engine roar hollows out. We are in the air, Honolulu bound. 35 seconds. Good going.

Treasure Island flashes below. Ahead is the Golden Gate. I signal the first officer to throttle the engines and reduce the propeller speed for the climb to cruising altitude. We take off at 42 inches of manifold pressure and 2,200 r.p.m. I give the pilot-navigator the exact time of take-off to enter in the ship's log. We level off at 7,000 feet and I give the order to check ship. We go through the same routine we went through on the water, checking each one of the 112 spark plugs and the various switches and instruments. Although the wing walkways make it possible for us to make extensive repairs to the engines in flight and we could continue our flight on three engines, if there is any sign of trouble at this point we must give the order to turn back. It is one of the rules responsible for the company's enviable safety record.

The big ship handles easily in the air.

(*Continued on page* 66)

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Why Lindbergh Came Home

(*Continued from page* 11)

it would be wise for him to return to the United States. As a matter of fact, everyone who met Lindbergh abroad testified to a new cheerfulness and buoyancy is his make-up. He was less restrained, easy to talk to, even carefree. He even took an interest in international events and his study of German and Russian air strength, contrary to Walter Winchell, was not conceived by Ambassador Joseph P. Kennedy, but by Lindbergh himself.

All during the spring and summer of 1938 Lindbergh had been telling the British that they must get busy and build up their air force. He kept hammering home the fact that they were woefully unprepared and that Germany possessed the strongest air force in the world. However, he made little impression. And it was as means of waking up the British to their precarious air position, that Lindbergh finally took his inspection trip to Germany.

The Nazis, Lindbergh later reported, gave him every possible courtesy and facility, although they must have known what he was up to. Undoubtedly they did with him what they also did with the French air minister, who visited Germany just before Munich and came back horrified at the speed and efficiency of German airplane production. It was this astute German maneuvering which gave Hitler such a complete victory at Munich without even firing a shot.

Whether the Germans actually did have 10,000 first class planes at that time or were merely pulling the wool over the eyes of Lindbergh and the French Foreign Minister, probably never will be known. Most sensational part of Lindbergh's European survey was that of Soviet Russia, which brought down upon his head bitter attacks in the Moscow press, and even the caustic tongue of Lloyd George. Since returning to the United States, Lindbergh has told friends that he was misquoted regarding Russian air strength and that he did not paint nearly so bad a picture as reported in the newspapers. What he actually found was that Russian aviation, while good, was not as good as Germany's either as to planes or pilots.

It was about this time that Lindbergh began to worry about his unpopularity in the United States. So, when John Victory's letter arrived a few months later he said nothing to anyone, but immediately acted upon the suggestion. The results have been reasonably propitious for everyone concerned except, possibly, a few War Department brass hats who tasted sour grapes. The answer to the American public's Question No. 2 is that the Lindbergh of today is far different from the grouchy, taciturn Lindbergh who kicked mud on newspapermen at Bolling Field in 1929. Traveling down to Langley Field, Virginia, to inspect the Army's research station, Lindy even posed for photographers so long and so good-naturedly that finally his cousin, Admiral "Jerry" Land of the U. S. Maritime Commission, began shooing them away by waving a suitcase at them.

"Be careful," interposed Lindbergh, as if they were his own children, "you're liable to hurt one of them."

The trip to Langley Field was made on the night boat which plies between Washington and Norfolk and was arranged by Senator Pat McCarran, pudgy potentate from Nevada. A group of Congressmen went along, most of them flocking around Lindbergh like a group of autograph hunters every time he showed his head on deck. Lindy was polite but aloof with the legislators. A little of the old shyness came back.

"Wow! I gotta good mind not to pull this ripcord!"

With his own party, however, he was the height of geniality. This consisted of Lauren D. Lyman, the former New York *Times* reporter who scooped the world on Lindbergh's secret departure for England in 1935; C. B. Allen, former New York newsman now with the Civil Aeronautics Authority; and Admiral Land, who is related to Lindbergh through his mother, the former Evangeline Land.

Lindbergh was in high spirits during the trip and told a lot of amusing stories about his aeronautical study of Europe. In Germany, he said, the Nazis joked a lot about British balloon defenses to protect London from aerial attack. Occasionally, he said, these balloons would break away from their moorings and some had been recovered in Germany.

"The Germans got a big laugh out of that," remarked Lindbergh. "They told me that the next time it happened, they would hitch the balloon to a Zeppelin and return it to London."

At Langley Field, Lindbergh showed great interest in the Army's wind tunnel which is the largest in the world. And after watching a miniature plane, manned by a marionette pilot, buffeted in the wind tunnel, he remarked:

"That boy needs a little more time on the ground before he solos."

Colonel Lindbergh did his best to help the Army and the National Advisory Committee for Aeronautics get the $10,000,000 research aviation base at Sunnyvale. In his appearances before various Congressional committees, he hammered home the importance of technical research and the great strides made by Germany.

"Germany is far ahead of us in the number of planes being produced," he told the Civil Aeronautics Authority at a secret session. "But that is not so serious. What is extremely dangerous, however, is the fact that Germany is far ahead of us in the quality of the ships she is turning out. That is a matter of gravest concern to the future security of the country.

"I cannot warn you too strongly," he continued, "that we had better get busy and do something about it. We need research facilities and we need them badly. Do you realize that Germany has five big and four small research laboratories, while the United States has only one? Think what that means in terms of the future. If they are already making better planes than ours now, what will they be able to do in a few years with all their scientific development?"

When questioned regarding the one American aviation research station at Langley Field, Lindbergh replied: "It's all right as far as it goes, but it should be much larger and we should have at least two or three others like it."

The appropriation for Sunnyvale was introduced in Congress late in the session, but thanks to Lindbergh's steady hammering, it received Congressional authorization, and also nearly two million dollars appropriation to start work immediately.

This selling of a bill of goods to Congress was Lindbergh's chief success. His inspection of American airports was pooh-poohed by many Army aviators, for the obvious reason that it was a publicity stunt. The Government already had available most of the informa-

(*Continued on page* 74)

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AIRCOOLED MOTORS CORPORATION

SYRACUSE, NEW YORK

I Was a Hero

(*Continued from page 43*)

weren't any expensive survey ships, carrying a load of instruments that would sink a geodetic survey boat. Aviation was still a baby, or at least a kid with growing pains and people had to be shown what could be done with it. The only way to show them was with the kind of equipment we had then—Lindbergh's Ryan, the Maitland-Hegenberger Fokker, my Travel Air monoplane, and other ships of that day. Also, the only flyers to do the showing were those of us who had faith in aviation's future and a little nerve to back it up.

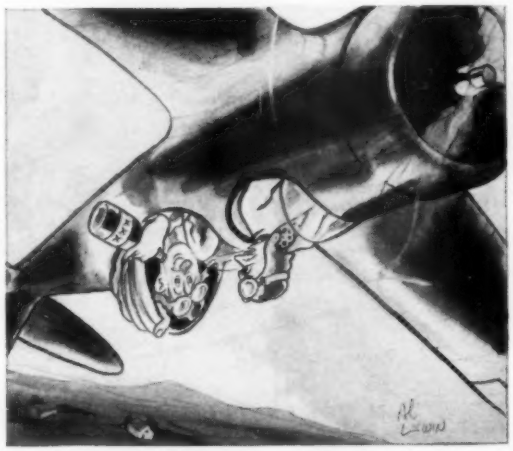
As far back as 1919, right after the War, I wanted to make a flight to Hawaii. It was out of the question then, with the kind of equipment they had in those days, but I hoped there'd be a time when I could do it. Even then, I'd dream about when aviation would be down to an exact science, like the railroads and ship lines—only more so, with elaborate land routes and big skyliners like TWA now has, running on stopwatch schedules. And regular ocean flights, like Pan American operates, too. People thought I was nuts, all right. But the day I dreamed about is here, today!

I got the aviation bug, in the first place, pretty early. I used to watch men like Lincoln Beachy, Silas Christopherson and Art Smith flying the old pushers at Tanforan and the 1915 Fair. The war came, and pretty soon I just naturally found myself in a ground school at Berkeley. I got commissioned and spent the war at Rockwell and March Fields, instructing. From then on, there wasn't any question about what my career was going to be. I flew the first forest patrol ship ever flown—it was a Jennie military plane—out of March Field in 1919, over the high Sierras, I did my share of barnstorming, too. But, in 1926, I decided that the real future of aviation was transport, and I wanted to get into it. I hooked up with the old Pacific Air Transport, flying up and down the Coast. We used Travel Air monoplanes and I used to think: "Well, this is a lot different than the old pushers; maybe one of these babies could fly to Hawaii."

After a while I began scouting around for a backer, but there weren't many people putting their money on flights to Hawaii those days. At last, early in 1927, I ran into Anthony Parente, a San Francisco man. He was a sportsman as well as a good sport. He said that if I wanted to risk my neck flying to Hawaii, he'd risk a lot of dollars to help me do it. We bought a six-passenger Travel Air from P. A. T., ripped out the seats, put in extra gas tanks and a Wright *Whirlwind* J-5. (Later, when Tony got the news that the *City of Oakland* was washed out on Molokai, he yelled: "Oh, the hell with the plane. Thank God, the boys are safe.")

In 1927, you'll remember, the world was pretty much aviation-crazy. Lindbergh flew the Atlantic in May. Chamberlain and Levine were ready to go and Byrd was fixing up the *America*. Maitland and Hegenberger were planning their Oahu flight.

As a matter of fact, I took off for Hawaii the same day they did—June 28—just a few hours later. But I didn't get any farther than over Alcatraz! An isinglass cowling tore off and we came back to the airport. Then my first navigator—not Emory Bronte—decided he didn't want to make the trip anyhow. Incidentally, I landed the ship with a full load of gasoline, which was about like dropping a crate of eggs on a sidewalk without breaking any. Well, I had to look for another navigator, and at last somebody—I think it was Tony Parente—turned up with Bronte. Emory had learned his navigation at sea. We hit it off right away and began laying our plans. One thing we decided we would *not* do, and that was to start with the Dole flyers. I always thought that flight was a terrible mistake—and it was. Less than a month afterward, the race started, losing three planes at sea to say nothing of several fatal crackups before the take-off.



"No, no! I said blind flying, not flying blind!"

On July 14—day of the Fall of the Bastille—we were all set to go once more. We poured 370 gallons of gasoline into the tanks (if we could have put in a little more we wouldn't have set down in that kiawe tree) and climbed in. I had a rabbit's foot in my pocket and also a thing called a "tear stone", from Patrick County, Virginia. It's a little stone found only in that part of the world, and it's supposed to represent the tears at the Crucifixion. Byrd, a Virginian, had carried one across the North Pole. Mine was sent to me by a little girl, so I took it along. I also took some smelling salts to help keep me awake. Emory had a .45 Army automatic. He told everyone it was to "shoot sharks with". We had a limited food supply, too. Maitland and Hegenberger were back from Hawaii, and they gave us some advice and waved us goodbye. Then I gunned down the runway. After about 2,000 feet we hit a rut and nearly tipped over. So we went back to start again. Someone asked Emory if he was discouraged.

"Do I look it?" he said, grinning like a piccaninny eating watermelon. He had nerve besides good sense. Never flew before, either. Next time—it was 10:39 a.m.— we got off all right. The *City of Oakland* lifted her nose into the air and we crossed the Golden Gate and poked into a sea of fog. That's all we saw, except a stretch or two of gray water, until we sighted those mountains next morning. I've told you the rest already. . .

After we set down in the kiawe tree, we were taken to the house of Judge Ed McCorriston at Kaunakakai. This turned out to be a joke on some of the newspaper boys back home. The judge happened to be the United Press correspondent there, so he scooped the world. More to the point, he also called off a search by the Army, Navy and Marine Corps.

Then the fun really began. When we got to Honolulu, we found that we were famous. The people there were just getting their wind after welcoming Maitland and Hegenberger but they took a deep breath and began doing it all over for us. They decorated us with *leis*, gave us parades, banquets and receptions for a whole dizzy seven and a half days. Then we went home on the *S.S. President Jefferson*, and got the same thing again, only noisier. The late Jimmy Rolph was mayor of San Francisco and he headed the delegation. All the whistles in the world were blowing on the bay and an escort of planes came in with the ship. They made us parade in San Francisco and we paraded again in Oakland and Berkeley. At Oakland we helped dedicate the airport—remember, a couple of weeks before we were just a couple of fellows nobody knew!—and we unveiled a plaque commemorating our flight. Later, the Army awarded me, as a reserve officer, the Distinguished Flying Cross.

The mail was coming in from all parts of the world. Some of it offered us jobs, some of it was highly romantic and some of it was just plain goofy. However, I began to realize that this wouldn't go on forever and, besides, *it wasn't aviation*. It was a three-ring circus. People were being swell to us, but so far it was mostly frosting. We wanted cake.

"This is very nice," I told Emory, "only you can't eat glory."

One of my offers was from Howard Hughes, who wanted me to go to Hollywood and help make a movie called "Hell's Angels." So, after I took the inevitable triumphal tour around the coun-

(*Continued on page 88*)

"I Fly the Clippers"

(*Continued from page 60*)

I can move the controls with two fingers and the rudder pedals require very little pressure. But we give the routine job of flying over to the gyropilot, Iron Mike or Filbert, as we have named him. We have to stand by and watch him and make corrections now and then, but he relieves us of the labor of constantly ho'ding onto the controls.

I order the throttles set for the predetermined cruising speed. The engineer synchronizes the engines. I switch on the gyropilot and with the adjusting wheels and tabs at my side trim ship and set her on the course laid out by the navigator.

It is now 4:29, or 00.29 Greenwich time which we use during the flight. We are over the ocean 50 miles west of Treasure Island. In another minute the first of the bearing checks will boom in from our D. F. (direction finder) station at San Francisco. We get these checks on our exact heading every half hour but if the necessity arises they can flash them to us as fast as three every two minutes. One ground station can work us all the way, but we switch over to Honolulu D. F. at the half way point.

The air speed shows 150 m.p.h. The manifold pressure is 29 inches and the r.p.m. 1,900. We have 1,500 horsepower available in each of the four engines but we are using only 950. They are turning over so quietly they seem to be loafing.

Radio reports a layer of high cumulus clouds drifting onto the track 500 miles out. Probably have to go up through them tonight. Have to keep on top so the navigator can shoot the stars and get the celestial fixes that check our position. He never goes more than two hours between fixes.

We are flying into the setting sun. In a few hours darkness will settle over the restless blue water below. I give the order to start duty watches. With two of us on duty at the flight controls at all times, we spell each other every hour. I look around at the rest of the crew. The sea routine is in full swing. The radio officer is tapping out messages of our progress. The navigator has dropped a smoke bomb and is checking our drift through sights on the wing. At night he uses phosphorus bombs.

The first engineer has disappeared in the port walkway. He's making his half-hourly inspection of the engines. At night we inspect the front ends of the engines with a rotatable light that streamlines into the top of the ship.

I ease out from behind the flight controls and the first officer takes over. The third officer slips into the vacant chair. Things are going smoothly. It is about time for dinner. I saw them loading on some tasty looking squabs. I wander downstairs to the lounge. The steward introduces me to each passenger. I believe that is an excellent way of promoting confidence in air travel. If the passengers meet and talk to the men handling the ship, they take a personal interest in flying.

We sit down to dinner in the lounge, 14 at a time. I eat with the passengers. The ship is very quiet and we talk back and forth in normal tones. The tables are set with gleaming linen and the clipper's own silverware. An eight-course dinner. To think, we used to fly the ocean on a ham sandwich. My, these squabs are good!

On the mainland I hear people say how monotonous it must be to fly the ocean. Nothing could be farther from the truth. Always there is something interesting to do and see. During the day we watch for surface ships. At night we look for their lights and at the millions of stars. Often we give the passengers informal courses in astronomy.

The cloud formations over the ocean are the most beautiful in the world. Great white puffy things, they drift lazily across the blue sky. On moonlight nights when we are above them it is like looking down on a field of snow. Also, during the day we occasionally sight schools of whales spouting all over the place. If they would only stay

(*Continued on page 68*)

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(*Continued from page 66*)

still we could use them to check our drift.

We lose the gulls and the rest of the birds a few miles from the mainland. They are a lazy lot. We are too fast for them, anyway. The passengers spend most of their time wandering about and gathering in little groups to swap stories. They play games, bridge mostly, or Chinese chess or race horse, that game with the dice. They read a lot, too. We have the latest magazines and best-seller novels in our ship's library. There is no music.

When we pass over an ocean vessel I exchange greetings by radio with the other captain. We use the radiophone. Often some of his passengers send greetings to some of mine. We also exchange the news and, important to the navigator, we exchange bearings. If it is in the daytime the vessel salutes us with its whistle and we can see the plume of steam. At night we blink lights at each other.

Passengers are such interesting people. Most of them have traveled a lot and they tell of faraway places. Usually we have one or two honeymoon couples aboard. Lots of first flighters, too, but I have yet to see a passenger who didn't appear to be completely at ease. I run into a lot of funny ones, too. The last trip out I heard my own voice on the radio. It was a talk I had given the day before at the fair. Either I had caught up with it or the radio waves had gotten lazy and were lolling around over the Pacific. Pretty soon, though, the announcer explained it was a re-broadcast.

A couple of trips ago a lady passenger stopped me and whispered she was afraid we were off our course. She had a Boy Scout compass in her hand. I asked her to open her handbag and the first thing that popped out was a photo light meter. I showed her how that was doing things to her compass so she turned the navigation job back to us. That was the same trip I gave a bride away.

After dinner in the lounge I go back to the controls. On the flight deck all is well. It is dark now and the navigator is in his turret observatory after getting his first star fix. He takes them frequently throughout the night, never more than two hours apart.

I relieve the first officer so he can go to dinner. I tell him about those mighty good squabs.

Ahead we sight the outer fringe of that cloud bank radio spoke about. I give the order to pull up on top. I take over the controls. At 10,000 we are on top in the clear and I level off. Again we check our bearings. The navigator takes another star fix. The radio officer holds down his key and the San Francisco D. F. booms in with a check. Now the radio officer swings his loop on the *S. S. Matsonia* which is nearby. That gives us a triple check.

Pretty soon the first of the lights on the lower deck go out. The stewards have made up the berths and the passengers are turning in. I go down to say good night. A youngster who is traveling with his mother has thought up another question. I encourage questions and am glad to answer them. Some are puzzlers, though. The youngster wants to know how a housefly lands on a ceiling—out of the top of a loop or with a half roll. That's got me.

The last of the passengers turn in and the lower deck goes dark. The big clipper slips on through the night. On the flight deck the routine is the same. Two hours on and one hour off. I spend my hour off checking ship and holding conferences with the navigator, the engineers and radio officers. Radio reports we will pass the *California Clipper* in an hour. She's our sister ship, bound for San Francisco from Honolulu. I asked the radio officer to contact the *California Clipper* direct. He gets her exact position and speed. I exchange messages with her captain on what altitude to pass. We decide I will hold 10,000 and he will climb to 11,000.

We talk back and forth and plot each other's progress. When we are about to pass all hands join in the game of "I Spy the Other Clipper." It's fun. There she is! See those lights blinking? They're saying hello. We blink back. By radiophone I learn from Captain Bill Cluthe (he's in command of the *California Clipper* this trip) what kind of weather he has come through. I tell him what's ahead for him.

Quickly the lights fade and are lost in the stars. Tomorrow morning, about an hour after we land at Honolulu, they will arrive at Treasure Island.

The equi-time point! We are almost to it. I summon the first engineer to my office. He reports how much fuel has been consumed and how much remains. He shows me a plotted chart of the gas consumed and miles flown. We call it the "howgoesit" curve. The gas consumed curve is below the mileage curve. That's fine. If it was above that would mean we are exceeding our gasoline budget. We check the ignition switches again and make another careful inspection of the engines. All okay. I call the navigator. Then the radio officer. They report everything okay.

I give the order to proceed to Honolulu.

Now the first faint tinge of daylight is creeping into the tropical sky. The navigator is taking his last star fix. From here on the radio plays an important part in keeping us on our course. The Honolulu D. F. (they're guarding us now) booms in with a bearing check as the radio officer prepares to swing his loop on the steamer *S. S. Lurline.*

Land ho! I have made the flight many times but always it seems it is over before it starts. We make a landfall over the green mountains of Molokai, one of the Hawaiian group. Sometimes we make a landfall on the lights of the city of Honolulu. Now we home on a signal from our Honolulu station. From the patrol boat in the landing area comes our landing orders, what runway to use, the wind direction and velocity, etc. Honolulu har-

(*Concluded on page 70*)

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(*Continued from page* 68)

bor is as busy as it is beautiful. We let down over the water off the city. I take my place at the first pilot's post. I am in full control of the ship all of the way in. As we start our approach I make a final check of the engines with the ignition switches. The first officer is at my side in the second pilot's seat. He calls the roll by telephone. The stewards report hatches secure and passengers in their proper seats. The trailing antenna is reeled in. Crew and ship all ready for landing!

The air is smooth as silk. It is a beautiful tropical day and Honolulu is in all its glory. The patrol boat radios the course is clear and ready. I give the order for the flaps. The big ship slows her glide as they appear at the trailing edge of the wing. A few feet off the water I level off and let her clip over the surface for a few seconds. Then, easily, I let her cut into the water. I keep the engines turning over at a fair speed and we taxi to the dock. I give the navigator the time of landing and he enters it in the ship's log.

We are 16 hours and 34 minutes out of San Francisco. One minute under our forecast.

I am the first down the gangplank. Then the passengers and after them the rest of the crew. We turn the ship over to the ground crew to prepare her for tomorrow's flight to Midway, the second stepping stone on the way to Hong Kong. I hurry to town. I have just time enough for a couple of sets of tennis before breakfast.

And so it goes, across the Pacific. The next day we fly over beautiful and spectacular reefs that stretch almost to Midway, our overnight stop. Waiting there are the famed gooneys, those curious birds that came out of nowhere to claim Midway as their home. They line up like curious natives to look us over and see who we brought this trip.

Early the next morning we hop off for Wake Island. As we cross the international date line we hold a ceremony somewhat similar to the one they hold on boats crossing the equator. I officiate at this ceremony.

Overnight at Wake, a moonlight cruise in the glass-bottomed boat around the marine gardens, then on to Guam, Manila, Macao and, on the sixth day out of San Francisco, we land at Hong Kong. First to greet us is famed Sampan Annie, who sculls alongside to take personal charge of the docking of our big clipper. She never says much but she works plenty. She fairly makes the water foam as she darts here and there.

Overnight at Hong Kong, then back to Manila. Thirty-six hours there and we hop off at 3 a. m. for Guam so we will land in daylight. These night take-offs are interesting. A workboat goes out first and lines the runway with light buoys. The patrol boat sweeps the course with searchlights to make sure it is all clear. We follow the patrol boat to the head of the runway. They flash a green light: All clear and ready!

We blink our navigation lights: All clear and ready.

As the first officer opens the throttles a cannon on the patrol boat fires flare shells into the sky. They explode at 2,000 feet and make the runway as light as day while descending on their parachutes.

From Guam to Wake, Wake to Midway, Midway to Honolulu, then the long overnight flight to Treasure Island. It was just two weeks ago we took off from here for Hong Kong. I turn the ship over to the ground crew, sign the logbooks and other papers and rush home to greet the family.

Incidentally, my daughter Patsy—she's seven now—flew 25,000 miles before she was two years old. She wants to go to China with me next trip.

For two of the next five weeks I am on my own. During the other three I work out flying and navigation problems on the training ship, test hop the clippers in port and otherwise keep my hand in.

Then the physical examination, the three-hour test flight and off again to the Orient. I make the round trip every seven weeks. In addition to the two weeks off every trip I get a month's vacation every year with pay.

How did I get my job? I went the long way around. I left my home in the foothills of the Ozark mountains during the World War and enlisted in the Naval aviation service. I have put in 20 years of flying and I've been lots of places and have flown almost every kind of sea and landplane. I did some trailblazing in South America, pioneered the Carribean with the Navy, barnstormed the West with an old Jenny when I was on furlough and flew tri-motors in Cuba. My logbook shows over 10,000 hours. Most of the master pilots have about the same.

The minimum requirements for Pan American captains are 500 hours on four-engine boats, 2,500 hours of logged time altogether, 450 hours as pilot-navigator and about four years of apprenticeship on the coastal and ocean runs. Most captains have an Army or Navy background. They work their way up to pilots on the coastal runs, then transfer to third officer on an ocean run. They check out in engineering and navigation and take examinations for first officer which puts them in line for the captaincy. The training is very thorough. The pay runs from $200 a month for junior pilots to $833 a month for captains. Also, all of our expenses are paid when we are on the run.

I would advise any youngsters who want to fly the big clippers to get a thorough college education and to specialize in aeronautical engineering. They should go in for athletics, too, to keep in top physical condition. Tennis and golf are good sports. They help the eyesight.

What about the future? I am 36 years old now. I figure I have about 15 or 20 years of clipper flying ahead of me. I wonder what will be the size of the clippers then? When my flying days are over I will probably go to a ground job or retire. I hate to look ahead that far, though, because right now I have the most interesting job in the world.

END

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Live Load

(*Continued from page* 41)

The Skipper's section preceded us and, after a long run across the field, we were off. As we rose above the ridge of Point Loma I noticed that the mountains east of us were standing out with crystal clarity; it was one of those rare days when the visibility was almost perfect. We could see for miles. I stole a quick glance out to the right, taking my eyes off of my section leader's plane for a moment, and saw the carrier steaming along 10 or 12 miles off of the coast, looking like a miniature ship sitting on a table mirror. The two plane-guard destroyers trailing along in her wake looked like dories at that distance, but the carrier's wake was visible for miles behind her in the glassy water. Today the Pacific was really living up to its name.

As soon as the squadron rendezvous had been effected, the Skipper headed out to sea and in a short time we were circling over the carrier. The landings proceeded like clockwork; not one pilot ahead of me got a wave-off and, as I approached for my landing, I was unable to detect any roll or pitch of the carrier's deck. For once, at least, conditions for carrier operations were perfect.

This time I felt perfectly at ease as I brought my plane in for a landing. There was hardly a jolt as the wheels touched the deck and the usual jerk as the landing hook engaged the arresting gear was almost imperceptible. I taxied on up the deck and was spotted well up forward. The landings continued uneventfully until all of the squadrons were aboard. For once there was not even a blown-out tire to mar the procedure.

Now the real business of the day was at hand. From the magazines deep in the bowels of the ship the bombs and machine-gun ammunition were brought up to the flight deck. In spite of myself, I felt my heart beat a little faster as I saw the first of the bombs, long, streamlined, sinister objects that looked much more efficient than the clumsy tin water-filled substitutes we had been dropping in practice. These really looked as though they meant business. And when I reflected that each one carried a hundred pounds of TNT in a steel case whose fragments would clean off the whole end of the flight deck, my respect for them increased even more.

Then two ordnancemen passed by me, trundling one of the 500-pounders aft for one of the scout-bombers. My eyes widened as I watched it, but a moment later I stared open-mouthed at a tremendous cylinder with stubby fins, so big it took four men to handle it—a 1000-pound demolition bomb for one of the heavy bombers. Compared with that monster, my two little 100-pound fragmentation bombs looked like sweet potatoes.

What if one of those should go off? . . . my mind could not even picture the consequences. But when I saw the nonchalance with which the ordnancemen handled their deadly charges, I absorbed some of their confidence and soon became engrossed in checking the loading process.

This was to be a genuine rehearsal, with a full load of fuel and machine-gun ammunition to simulate actual wartime conditions. Off to the south there was a tug towing a barge which was to serve as a target. We were to take off of the carrier, climb to high altitude and bomb the barge, while observers marked the accuracy of the explosions.

In a short time all was ready, and the whine of the inertia starters preceded the command: "Stand clear of propellers!" Then "Start engines!" and the staccato bark of exhausts swelled to muffled thunder as we warmed up our engines. One after another, the planes ahead of me taxied out to the center of the deck and took off.

Soon it was my turn. I headed up the deck, waited for the "all clear" signal, and eased the throttle forward until it was wide open. This was a heavy load and I wanted plenty of speed before I came to the end of the deck. My plane gathered speed slowly, but I held it on until the end of the deck was only a few yards ahead before I eased back on the stick. The plane responded sluggishly, and seemed to stagger off of the deck into the air. The controls felt logy, so I climbed slowly at a flat, conservative angle.

Finally I caught up with my section leader and eased in behind him in a careful join-up. One by one the others toiled slowly up to join us and the Skipper started the long climb up to dive-bombing altitude. Behind and below us the scout-bombers started taking off with their 500-pounders.

As we continued the monotonous climb, I relaxed and began to be a little bit bored. This was just like any other flying. Half an hour more and we could get rid of these eggs and head for home, I told myself. Let's see—what would I do the next weekend? Should I drive up to Los Angeles, or go down to Tijuana with the gang? Or should I . . .

Then, without any preliminary call, a voice rang out over the radio; an urgent call that jarred through my earphones and shocked me back to attention: "Crash! Crash! Crash!"

Immediately there followed a confused babel of voices and overlapping calls. For the moment, radio voice procedure was forgotten: "Number Twelve has exploded and caught fire . . ." ". . . at least three planes . . ." ". . . send the destroyers!" ". . . about two points off your starboard quarter . . ." ". . . his 'chute did not open . . ." ". . . I think it was a primer explosion . . ." . . . "Number Eleven and Number Twelve . . ."

Glancing quickly around the horizon, I saw it. Several miles off to my left (a thick column of black smoke trailed down from our level to the ocean below. There was no motion to it whatever; it neither rose nor drifted. My eyes followed it down to its base, and there on the water burned the fierce bright flame

(*Continued on page* 76)

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Lindbergh

(*Continued from page 62*)

tion Lindbergh could gather and also it had better qualified men to make the survey. One fact which Army officers probably overlooked, however, was that the inspection tour was cooked up not by Lindbergh but by their own chief, the Secretary of War himself, and had behind it the idea of selling air defense and air appropriations to the public.

Lindbergh's manner of carrying out the survey was a pain in the neck to some Army officers because they never knew where to put their finger on him. One day, for instance, he dropped into the Curtiss plant in Buffalo and found them using Allison engines. So he immediately decided he wanted to have a look at the Allison plant and upset his entire schedule to hop down to Indianapolis to see it.

Lindbergh's reports to the Army chiefly emphasized the reflections of a research mind and one who was a great admirer of the German scientific approach. He contributed little that was new, and some officers believe that it was a mistake ever to have put him on the reserve list. There is no question, however, that Lindbergh's appearances before various aviation groups and Congressional committees helped both him and the cause of aviation. He was careful to shun meetings which were publicized, and failed to show up at the House Foreign Affairs Committee because its chairman had ballyhooed the session in advance.

One thing which he emphasized to the House Military Affairs Committee was the importance of stimulating flying among youngsters.

"Your pilot-training program is of the utmost value," Lindbergh said, "not only for national defense purposes but for the development of civilian aviation. You should promote interest in gliding. There is very little of that here while in Germany glider clubs are all over the place."

If Lindbergh came back to the U. S. A. partly as an experiment to see how the press treated him; if he came back to see whether he could live in relative privacy and to explore the general question of whether he should return to this country permanently to live, then on the whole the experiment was a success. Lindbergh, the shy and irritable youth of five years ago had matured. He was more considerate, more balanced and generally made a good impression. In turn the newspapers also were more considerate.

But the old hermit-like Lindbergh still exists underneath, as was illustrated one night when one of his close friends was driving him to his home in a suburban section of Washington. Parking their car some distance from the house, the two men walked through the leafy, summer night together.

Suddenly Lindbergh threw his hands over his head like a jubilant schoolboy.

"Isn't it great," he cried, "to be where there's nobody looking!"

END

National Air Board

(*Continued from page 55*)

figure as 7½ per cent.

A Safety Education Campaign

George B. Post voiced an excellent suggestion. In preference to regulations and harsh enforcement, he advocated a safety-in-flying educational campaign. A great deal could be done by education, striking posters on bulletin boards at landing fields, etc., following similar effects in the automobile field. Insurance companies and lightplane manufacturers might well get behind such a program.

A Message to the CAA Graduates

E. Burke Wilford set forth the possibilities of a light helicopter for private flying. Mr. Michel suggested an Alumni Association of CAA graduates. Many other suggestions and animated discussion led to the unanimous adoption of a message to the 300 CAA graduates. POPULAR AVIATION will undertake that this message reaches the young men in question. As phrased by the chairman, Dr. Alexander Klemin, it reads as follows:

1. It is quite possible for a few men say 7 to 10—to form a lightplane club and to purchase a lightplane cooperatively.

2. The aviation credit or financing situation is in very good shape and it costs no more to finance the purchase of a lightplane than to finance an automobile.

3. Aviation insurance now is down to 10 per cent premium and is, therefore, fairly reasonable.

4. In forming a club it is very desirable to select congenial and reliable associates; undesirable members can wreck it.

5. The CAA is certain to extend some help in regard to further flying by graduates of the plan, but you should not expect the Government to do everything.

6. In flying, the greatest care should be exercised and all forms of exhibitionism should be avoided.

7. If you continue flying, you should at the same time extend your knowledge of aerodynamics and theory of flight.

8. If seeking further instruction, be sure to select an instructor who not only is rated by the Government, but also one who is acceptable to the aviation insurance companies.

END

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Live Load

(*Continued from page 72*)

of a gasoline fire. There was no wreckage visible—just that ominous pillar of black smoke with the fire at its base. Off to one side I could see the plane-guard destroyers rushing towards the spot at full speed, churning up a foaming white wake behind them. The carrier also circled in a wide turn and headed back.

What had happened? Who had crashed? What had caused it? A dozen questions flashed through my mind. Then one thought stood out like a bright white light that threw all the others into insignificance—one fragment of confused radio message rang in my ears: "I think it was a primer explosion . . ."

The idea loomed large and monstrous. *That* was it. The bombs were defective. A bomb's primer, its sensitive detonating element, had just exploded out there, blowing those planes out of the sky. How many planes, the Lord only knew.

Apprehensively my eyes turned to the bomb that hung under my section leader's nearest wing. Suppose it should let go? Suppose a bomb on any plane in the squadron should let go? As close as we were, one bomb's explosion would probably jar off the next, and so on down the line, like a string of firecrackers. The whole squadron would be blown out of the sky.

Instinctively I edged away from my section leader with his load of bombs. Then I noticed that the interval between the other planes had widened perceptibly; evidently the rest of the pilots were fearing the same thing. My throat grew dry and my hands clammy. How long was this suspense going to last?

Finally a welcome radio message came from the carrier: "Cease present exercise and return to base."

Our Skipper placed us in open formation and directed us to drop our bombs into the water. One after another, each plane peeled off from the formation and nosed over in a shallow dive. Pulling back the lever that armed my bombs, I placed the release lever on "salvo" and waited for the plane ahead of me to dive. After he had pulled clear, I shoved the stick forward, waited until my plane had gathered speed, jerked the bomb release toggle, and pulled up sharply, looking back over my shoulder to watch the bombs explode. Twin geysers of water spouted up as they hit and the surrounding water was ripped and torn by flying fragments.

What a relief it was to get rid of that deadly burden! Quickly I joined the planes ahead of me, and soon the squadron was reunited—intact. Once more we flew our customary close formation and confidence returned. The flight back to the base was completed without incident, and back on the ground we anxiously asked for details of the accident. We learned that instead of being caused by detonating bombs the disaster was the result of exploding fuel tanks, caused by an aerial collision between two planes during the join-up. Four men had gone down with the two planes, in water nearly a mile deep.

Under such circumstances, the bombing practice was temporarily discontinued. It was not resumed until daylight the next morning.

END

Great Pals

(*Continued from page 46*)

snared himself on a door handle. His 'chute opened partly and billowed through the cabin of the ship. It knocked the lampblack out of Unger's hand and the stuff filled the cabin, blinding Unger and Garland.

Unger and Garland both wore parachutes. They could have bailed. But Garland, blind, stuck at the controls with a life at stake. Unger pulled Austin back into the cabin after an exhausting struggle which lasted minutes. Garland got the ship down, finally, still half-blinded, in a narrow canyon. The wheels stopped 20 feet from a 100-foot bluff.

Daring sacrifices like these have handed down the fine tradition of good-fellowship through the years—a willingness to gamble with one's own life to save another.

Herb White, veteran Hollywood stunt pilot, tells of ferrying a lightplane across the country. Over Arizona he bumped into a headwind, ran out of gas, and had to come down into desert mesquite. The bottom of the fuselage was torn by brush.

"I was underneath the ship, examining the damage, when I saw a pair of legs in white coveralls," Herb relates. "A man, holding a heavy needle and coarse thread, bent down.

"'Tough luck, eh, fellow?' he asked. 'Well, we'll soon get you straightened out.' He started making repairs. 'Don't worry about me,' he said. 'I hold an A and E.'

"He worked for a couple of hours, drove me across desert wastes to the nearest town, loaded his car with gasoline, filled my tanks, checked my motor and gave me a spin. I offered him money. He wouldn't take it. 'It might happen to me some time, and you or somebody else would come along,' he said."

Then there was Ive McKinney. When I knew him at the old Teterboro field, he was interested in watching a couple of young fellows build up a homemade crate. Neither could fly. When they finished it, they asked Ive to test fly it.

"Sure," he said. "Anything for a couple of pals."

The thing started coming apart in the air. Ive got it down somehow. When it hit the ground it went several different directions. The motor lit in Ive's lap. He was pretty badly banged up. But he thought of the fine hopes and aspirations of the young designer-builders. He didn't want to hurt their feelings, spoil their enthusiasm.

"Sorry, fellows," he said, wincing as they untangled him. "I guess you picked yourselves a pretty bum test pilot."

Ive is gone now. But that same grand spirit of comraderie lives and grows in thousands of hearts the world over.

END

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Above: *WAE Los Angeles maintenance shop*

Below: *WAE Douglas flying over Boulder Dam on the National Parks Skyway*

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Forest Patrol

(*Continued from page 29*)

them tell you lightning never strikes twice in the same place; I've seen it take three socks at one big tree to get a blaze started).

We are working out of Montague. That's a fair field off the main airway leading from California into the Pacific Northwest. We roll out at dawn and drive to the field, barely taking time to gobble breakfast. Our planes have been staked down, so we unhitch and fuel them from drums brought out by truck. We climb in and start the engines. While we are warming them up, our orders for the day come in by radio. In the field the forest service uses a radio beam for communication. It carries in a straight line only, so they have to shoot it from the valleys to the mountain tops and then from peak to peak to the destination.

Bear Wallow wants a plane for observation, 10 bundles of food including two cases of eggs; five bales of hay for the mules and two kegs of water. Slide Creek wants five bundles of food, oats for 10 mules, some water and some salve for burns. Orleans wants a tool-grinder. That weighs 350 pounds and a gasoline engine goes with it.

Joe gets the observation assignment. He blasts his engine, rumbles down the field and clips over the treetops. In a few seconds he's lost in the smoke. He'll fly on instruments until he breaks through on top. He has a radio and by the location of the mushrooms he'll tell the rangers down below what's going on and where to draw their battle lines.

I get the detail to take the food and supplies to Slide Creek. That's a great little spot. I'll tell you about it later. They wrap the food in 70-pound bundles and cover it with heavy burlap. They put in fresh meat, fresh vegetables, eggs and lots of other things fire fighters never were able to get before. Scientists claim this airplane method of feeding fire fighters increases their efficiency tenfold. For each bundle we have a square of muslin with ropes on it, fashioned into a parachute. A tricky rope arrangement opens the chute when it reaches the end of the line so it lowers the bundle easily to earth.

We pile all of this stuff into the cabin. We take as much as 1,000 pounds at a load, which is plenty for a 420 h.p. engine. A ranger piles in after it, and we are all set. We get mighty few glimpses of the landmarks in the stifling smoke, but, with a ranger aboard who knows the country, that glimpse may be a life saver.

I open the throttle and we start rolling. The trees at the other end look awful close; the ship doesn't seem to be moving fast enough and the engine acts like it isn't hitting on all nine, but somehow we stagger into the air and clear all obstacles. A hundred feet off the ground and we are on instruments, climbing up what the map says is a canyon that we hope will lead us to the Trinity Alps country and Slide Creek. The map says the peaks are 7,000 feet, but once I was flying in this same spot at 8,000 and still looking up at them.

The air is red hot and rougher than the devil. This is no place for a guy with a weak stomach. Pretty soon I look at my watch and it says 45 minutes since we took off. So I start to spiral down. It's just like being inside of a tent, it's that smoky. A blast of hot air breaks the blanket and we see the spot. Jagged peaks all around and not a place within 35 miles a fellow could set a ship down and walk away from it.

A 32-foot muslin tee marks the spot where we are to deliver the bundles. It's right in the center of a narrow canyon. If they can, they put the tees on hogbacks so we can drop our loads while we are climbing. But Slide Creek is a great little spot, as I said. They are all set, down below. The men are gathered under the trees to keep score on our bombing. I keep on spiraling down until I am but 300 feet from the floor of the canyon. All around are rock walls. I level off and when I sight the tee over the nose I yell and the ranger lets go with bundle No. 1. I pull up in a chandelle and then back again to drop bundle No. 2. And so on. We hit the target almost every time. Only once in a while do they have to pick them out of the trees. During last summer I lost but one bundle out of 250 dropped.

Ten times I dive at the tee and then I spiral out of the canyon and head for home base through the smoke. The gas gauge is flirting with zero, to add to the fun. We are in the air anywhere from two to four and a half hours on an assignment. From this Montague base alone we serve fire camps along a 400-mile front.

The best trip is the first one in the morning when the heavy night air keeps the smoke at its lowest level. Then we can see the flames racing up and down the slopes and how the fire fighters are steering them towards creeks to snuff them out. Here and there we can see the fighters setting backfires to halt the flames. The most spectacular fires to watch are the crown fires that race through the tops of the big trees. It takes a fast plane to keep up with them.

From nine in the morning on, the job gets tougher and rougher. The fire heats the air and takes the lift out of it and puts a lot of squirrelly updrafts and downdrafts around the places where we hope for a break. We fly until after dark. On that last flight home we can see the red glare of the fires through the smoke. It's a really pretty sight. Back at the base we stake the ships down, grab some supper and hit the hay. Then up again at dawn and some more of the same until the radio beam flashes:

"All fires under control. Airplanes go home." Or words to that effect.

From the financial standpoint, it's a good paying job—if you get the breaks and don't wash out your ship or yourself. The ships and pilots are hired out to Uncle Sam on contract at from $20

(*Concluded on page 80*)

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POPULAR AVIATION	4,685*	ABC
AERO DIGEST	3,221	ABC
AVIATION	3,086	ABC
THE SPORTSMAN PILOT	1,287	ABC
WESTERN FLYING	384	ABC

* Figure does not include 6,000 additional copies of Popular Aviation sold outright each month to foreign countries not qualifying under strict application of ABC regulations.

Only ABC Aviation Magazines are included in this comparison. The AUDIT BUREAU OF CIRCULATIONS is the only recognized and reliable source of information on paid circulations. All figures are for the last six months of 1938.

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NOVEMBER ISSUE

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(*Continued from page* 78)

an hour up. This year they've added a tri-motor that brings $84 an hour. The pilots get from $2 to $5 an hour and keep.

It's a deadly serious job, but it has its funny side. For instance, usually the second time we return to a spot to drop food a family of bears is patiently waiting for us. They sit back under the trees until a bundle hits the ground. Then they pounce on it, rip it open and scamper into the woods with their loot.

Once over at Bear Wallow an old Indian and his horse were sleeping alongside the spot I was supposed to drop food. I gunned the motor to get them out of the way, but they kept right on sleeping. Finally I let a test bundle go. It hit a rock and bounced to within a few feet of them. The horse lit out for the tall timber with the Indian in hot pursuit and even Seabiscuit couldn't have caught them.

They tell one about an old Indian character in the Trinity National Forest. During a big blaze he suddenly disappeared from the fire camp. They thought he was a goner, but three days later he staggered back to camp, his clothes in tatters and his hands and face blackened. The ranger questioned him and he answered:

"Fight heap big fire all by self. Put him out."

More questioning developed that the old Indian had been fighting the backfire with which they hoped to stop the main blaze.

Once over near Orleans a chute split when I let go with a bundle of fresh meat and the stuff hit the ground with an awful wallop. It fell about 600 feet. I flew back to the base expecting to be greeted with a loud complaint from the Orleans gang for spoiling their dinner. Instead I got a message that read:

"Whatever you did to that meat, do it again. It was the tenderest we ever ate."

Then there was the time, after flying all day with food for the fire camps, I came back and found the airport on fire and had to circle until the blaze was put out.

END

Wooden Airplane

(*Continued from page* 39)

On the other hand, if wooden ships were used there would be instantly available a countless number of small factories capable of turning out parts of any type, as was proven during the World War. The method is quite practical and might mean the difference between defeat and victory.

The preference of foreign manufacturers for wood brings up a situation that should receive the attention of every American citizen. When an airplane man thinks of "wood" he thinks of spruce. For the purpose there is nothing that compares with it and it so happens that our North American continent holds the world's principal supply. At first glance it may seem that we have enough to last forever, but there is an end to everything and there will be an end to our spruce unless something is done about it right away.

Month by month and year by year our finest spruce timber is being logged away. Millions of feet go into ordinary lumber. More millions are being shipped over seas. While we stamp out metal airplanes our foreign competitors—and potential enemies—are taking our finest spruce timber and using it as a weapon with which to compete with us. What happened to our Port Orford cedar may be happening to our spruce and such a tragedy should never be allowed to occur. Timber such as we have now could not easily be regrown and there is nothing to take its place. Spruce helped win the last war and it might help lose the next.

The world's one great stand of Sitka spruce grows on the northern Pacific slope of North America. It reaches from the Arctic to northern California and is confined to a strip about 30 miles wide. It occurs here and there in forests and as single specimens with other trees, making its best growth between sea level and 3,000 feet, although it may be found higher. When both soil and climatic conditions are right it reaches an amazing perfection of growth. The trees stand close and straight as sentinels, reaching a height of 200 feet and a diameter of 8 to 12 feet. It is a common thing to find trunks reaching 80 to 100 feet to the first limb, without a knot or blemish of any kind marring their symmetry. The grain growth is often unbelievably uniform. This writer has seen cants 40 feet long in which the grain did not deviate more than a quarter of an inch from a straight line. These beautiful trees average around 600 years in age when full grown and their possible ultimate life is not known.

It is only from these mature trees that lumber suitable for airplanes can be taken and, even then, but a small part is chosen. In the past there was a tragic waste of timber in logging operations but more care is being taken now. This is partly due to the fact that choice airplane stock has reached a price equal to that of hardwood. Any talk of reforesting is fantastic. To establish the closely spaced trees in the proper soil and then wait the hundreds of years necessary for their growth is beyond practical possibilities. The thing to do is to conserve what we have and treat it as a national asset.

In conclusion, this writer believes that the all-metal airplane is *not* the final solution. It has its place, of course, but its all-wood rival should be given its chance. Theoretically, it can be built as rapidly and more cheaply. It lends itself better to shadow factory production and has outright repair advantages. On its record alone the all-wood airplane should have the full encouragement of both the Government and the manufacturers. Together with Canada we own the world's supply of airplane spruce and we should at least get our part of the benefit from it.

END

Around the World

(*Continued from page 23*)

bizarre places, curious customs and strange people. Then a hearty breakfast of bacon and eggs and the stewardess is handing you your hat. It's Chicago.

A glance at the flight log shows that a total mileage of 24,609 miles has been covered from Chicago to Chicago. And the traveler is entitled to be patriotically proud of the fact that practically two thirds of this mileage was flown under his own American flag: 4,534 miles on the Pan American *Atlantic Clipper*, 8,768 miles on the *Pacific Clipper* and 2,639 miles on United Air Lines for a total of 15,941 miles as against 8,668 miles under the British flag on Imperial Airways from Marseilles to Hong Kong.

For the vacationer, a trip around the world by air, whether it is a race against time or a leisurely jaunt with frequent stop-overs, undoubtedly may be catalogued as a romantic interlude and a grand adventure. But to the airlines it presents a new field of transportation service. Around the world service is regular scheduled service now. It is established on the timetables, a permanent fixture and available for all purposes. Because of its recent establishment through this summer's inauguration of the transatlantic routes, world air cruises belong for the moment in the category of pleasure or novelty travel. But the progress of time soon will swing open the gates of commercial traffic. The fast air schedules across the two oceans, the easy, convenient connections making possible uninterrupted passage from the United States to practically every point in Europe, Africa, the Orient and Australia, will bring marked changes in the methods of international trade. New trade channels will be opened and new travel created, just as new travel was created by the airlines within the United States. Transactions which bogged down under the twin handicaps of time and distance will be rectified by the new personal element swifter transportation will introduce.

When problems arise and cable exchanges merely add to their complexities, the round-the-world airlines will be available to dispatch personal representatives to the spot with no loss of time. International barriers and misunderstood customs will be broken down by greater familiarity. And new markets will be penetrated.

The United States may have lagged behind some of the other nations of the world in the development of her merchant marine, but in the newer field of transportation—the air—America is leading the way, not only through Pan American's pioneering to South America and on the transatlantic and transpacific routes, but through the marked superiority of the airlines operating within the United States. Nearly all of the developments and the improvements, both in mechanics and in service, that have served to make air transportation a standard of service have come from the manufacturers and the commercial operators in this country. U. S. equipment is used on many of the foreign airlines and U. S. methods of operation have been widely copied. In fact, it is possible to fly around the world and travel nearly every mile of the way in equipment manufactured in this country which, coupled with the fact that practically two thirds of the route is operated under the Stars and Stripes, may be accepted as further evidence of our unchallenged supremacy in the air.

END

Engine Orders

AIRCRAFT engines for the Army Air Corps to the tune of $25,009,389.64 have been contracted for by the War Department, POPULAR AVIATION was informed recently. Of this total, what probably is the largest single order for engines in the history of aviation went to the Allison Engineering Company of Indianapolis, Ind. This order alone totals $15,080,261.83. The Wright Aeronautical Corporation was awarded a contract for $8,975,317 worth of air-cooled radial engines while the Pratt and Whitney company received an order for $953,810.81 worth of the same type engines.

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OCTOBER ISSUE

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Persevering Pilot

(Continued from page 37)

"I'll learn to fly all right," he muttered between clenched teeth. "Just watch me." And there was born that determination.

He learned to ride a bicycle, swim, ride a motorcycle, drive a motorboat, an automobile and even a farm tractor. Then he and a companion built an airplane, a crude ship equipped with a wheezy, overweight and unpowered Ford engine. It wouldn't get off the ground, and finally ended up in a ditch.

So the lads bought a cracked-up Jenny and rebuilt it. Came the day for the tests. Riblet climbed into the cockpit, without a minute's instruction, and his pal started the engine.

"I'll just taxi it," he assured his buddy. He got away with it.

"Now I'll fly it," he told his friend. But he didn't. The ship ended in a ditch, a mass of tangled and twisted wooden longerons, spars, wing ribs and crumpled airplane cloth.

Riblet hunted up Leon Sherrick, then a well known Ohio pilot and later a pilot for the old Stout Air Lines.

"So you want to fly?" Sherrick looked dubiously at the empty sleeve, scratched his head and announced:

"Beat it, kid. I don't want your money."

But the lad insisted.

"I don't want sympathy. I want to learn to fly."

"Now look," said Sherrick, forcefully. "You need two eyes for your instruments and the other planes; you need two feet for your rudder bar; you need one hand for your control stick and one for your throttle—and where are you going to get that other hand?"

"I'll fix that," assured Riblet.

Well, Riblet got in a couple of hours with the dubious Sherrick, whose doubt quickly changed to admiration; and then he got in a few more hours with Clarence O. Bell, now pilot and manager of aeronautical sales for the Goodyear Tire & Rubber Company, at Akron.

Bell quickly found him a quick, alert pilot, and turned him loose in an OX-5 Travel Air biplane. That was back in 1928—and Riblet has been flying alone and safely since. He shortly afterward traded four building lots for a Velie-powered Monocoupe, a right tricky little ship which was powered with Velie motor No. 13. But 13 wasn't bad luck for him. He rigged up a throttle on his control stick so that he could control both with one hand and flew the Monocoupe over 400 hours, carrying hundreds of passengers and teaching half a dozen friends to fly. Then he bought and flew a Monoprep for a time.

Riblet's next ship was plenty of airplane for even the most skillful two-armed pilot—a Cessna powered with a 220 h.p. J-5 engine—and any pilot who ever flew one will tell you it was a plenty hot airplane. But Riblet handled it, flying it all over the United States under all kinds of conditions for years.

That was in the days before the Bureau of Air Commerce put down its thumb—or at least put down its thumb very heavily—on the flying game, and Riblet operated quite successfully. Once he was even selected to fly an Alexander *Bullet* with a one-eyed assistant from coast to coast in the Bendix Trophy Race, but the Alexander company ran into trouble with its *Bullets* and the idea fell through.

Riblet's real troubles in flying started when the state of Ohio decreed that he and other unlicensed pilots must obtain federal licenses or quit flying. Riblet, with 1,000 hours, applied for a private license—they handed them out indiscriminately to anyone with 10 hours of solo in those days—and was promptly turned down.

Finally the Bureau consented to give him a flight test—and he passed with flying colors, making every spot landing right on the spot, made every turn without slipping or losing an inch of altitude; recovered from every precision spin exactly at the end of two turns—and got turned down again.

A Bureau official lectured him on the dangers of flying with one arm. "Why," demanded the official winding up his lecture triumphantly, "what could you do if you suddenly lost the use of your one arm in the air?"

"Did you," demanded Riblet, "ever hear of anyone—outside of in a war battle—losing the use of one arm suddenly in the air?"

"Why, no . . ." replied the official, "but . . ."

"Neither did I," said Riblet, submitting a proposition.

"I'll go up with you. If you take the ship off, using one hand on the stick, and then land it with the other, I'll withdraw my application and quit."

Well, the official lost—and Riblet eventually got his license. Although he has since flown another 1,200 hours in all types of ships, under virtually all kinds of circumstances, he has never had an accident of any kind. Though licensed only as a private pilot, Riblet has found his airplane a very valuable facility in his business—for it has greatly boomed his business.

For a time, he owned a *Challenger*-engined Curtiss *Fledgling* biplane, using it to tow an advertising sign which advertised his gasoline business. He also rented out sign time to others to pay for the ship. Then he used his ships for entertaining large customers.

"Certainly," he said, "no business ought to be without an airplane."

Riblet now owns a "Duck"—a big *Wasp*-engined eight-place Loening amphibian which formerly flew between Cleveland and Detroit for the Thompson Aeronautical Corporation. The ship was cracked up by another pilot but he is having it rebuilt at the Parks Air College in St. Louis and plans to use it for flying customers and friends on vacation fishing trips to Canadian lakes next year.

All of which shows what a guy with a certain amount of skill and a lot of determination and courage can do.

END

Earl Ortman

(*Continued from page 27*)

Wasp Senior, a 550 h.p. take-off engine, was used by me for three years with power up to 830 h.p. without damage to the engine. After this test the modification was released with a 600 h.p. rating.

Let's take the need for a higher quality gas; gas which would not detonate under extreme supercharging. We worked with that with many brands, and finally got it in a 100 octane gas of a standard make. This is now used largely by transport lines.

Spark plugs showed deficiency under high pressure. We discovered this need several years before the Army or airlines went into experimentation. We used our ships as a testing laboratory, using every spark plug we could get hold of. Some of these custom-built little gadgets cost the companies as much as $50 each to prepare in sets of 28, but they cooperated beautifully.

We finally licked the spark plug situation when two companies, Bendix and B-G, combined to make a spark plug that stood the gaff and actually delivered for us. These are the plugs currently used not only by closed-course and cross-country racers, but by the airlines and military forces. Which is certainly a good mark on the closed-course side of the ledger.

Increased speeds called for a modification of propeller design which we arrived at by the "cut and tried" method. Then came the demand for cowlings of greater strength. As greater speeds developed steps had to be taken to keep the natural tendency of the cowling from being pulled into the propeller. This happened to me on several occasions and isn't a bit funny.

This, naturally, demanded new structural designs and streamlining, which, incidentally, are not yet perfect by a long shot. The streamlined cowlings and their cooling devices are directly traceable to the racing craft. Your modern airliner owes much of its bullet-shaped figure to the little "jeep" that careened around the pylons.

Efforts towards greater speeds required a retractable landing gear which would reduce resistance. Our racing ships were the first to experiment with this type of gear. An early instance was the Army's Verville racer of 1925 or 1926. This was the first practical installation, to my memory, although it was tried out about the same time in England. Little came of the British experiment. Earlier installations were heavy, complicated and unreliable. The landing gear now used by racing planes is of minimum weight and never causes the pilot a bit of worry.

Now . . . to get back to the original idea of this yarn: Why did I quit this tremendously fascinating and allegedly profitable business of closed-course racing for the salary and uniform of a first officer for Canadian Colonial Airways? (I heard that remark! It is *not* the stewardesses!)

Comes a time, as the story books say, in every young man's life, when security looks attractive. I have made a lot of money; I've spent more. Prize money at air races looks big when it is in the catalog and probably you have often envied the winner of the Bendix or Thompson for the big purse he took home. But listen to one who knows.

The biggest purse I ever won in one day's racing was $14,000. Quite a sizable sum for a few minutes' work, you say? Well, yes, but consider the initial cost of the ship I flew—a mere matter of $50,000. To this, for this particular race, I added $7,500 in cash for preparation. Now, how much did I get out of that $14,000?

Colonel Turner won approximately $24,000 last year at Cleveland when he copped the Thompson. I'll wager mighty little of that was profit.

Racing pilots may fly fast, but they are not flighty. As a first officer for Canadian Colonial Airways I can see a definite future for myself in the industry I love. My experience as a racing pilot has made me, if anything, more conservative and less inclined to gamble and take unnecessary chances. When I flew my own ship I went over it carefully for flaws in the works; as a pilot for a great airline this is done for me. I'm satisfied to take the word of the competent mechanics of the line. I never took anybody's word but my own before.

(*Continued on next page*)

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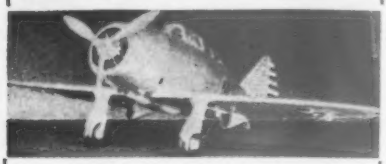

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NOVEMBER ISSUE
AMAZING STORIES

(*Continued from page* 83)

I'm not alone in deciding to become an airline pilot. Harold Neuman, one-time Thompson Trophy winner, plane designer and partner of Benny Howard, beat me to it by several years when he joined TWA. Shortly after that Roger Don Rae, one of the nation's greatest speed pilots, joined the same outfit and young Bob Buck who, although he wasn't a racing pilot was a nationally-known record flyer, decided he too would sit in the right-hand seat of a transport cockpit.

Even the resplendent Roscoe has become a business man—a vice-president in charge of something or other for Porter-field-Turner planes. He's going to race again, of course, but he's building up to a future.

My interests in experimentation will never cease. I'll always be interested in new aviation developments. My engineering training and an inquisitive mind make that imperative. But my guinea pig days are over. My old Marcoux-Bromberg racer, bless it, will be on the starting line at the 1939 Nationals in Cleveland and I honestly think it will win the Thompson this year. But my interests will be purely platonic. I'll be in the cockpit in spirit, helping whoever flies it with my subconscious support.

But me . . . if I'm not in the grandstand, I'll be somewhere between Newark and Montreal in the right-hand seat of a Canadian Colonial Airways DC-3.

END

France Will Be Ready

(*Continued from page* 15)

throughout the six major districts of the republic—so that activities may not be dangerously crippled by one or two raids. In addition, hundreds of small manufacturers engaged normally in making peaceful products are turning out aircraft parts and, according to our informants, doing a good job.

The entire plan is under the active direction of the Air Ministry. No longer is there a wasteful duplication of effort, as there was during the previous government. For instance, pure research and development is concentrated in one group of laboratories, in or near Paris. This coordination of experimentation is apparent from an inspection of various types of production models, each of which usually incorporates features seen on the others.

Among the better looking airplanes we saw, and all of them were excellent in appearance, were the Liore "45" bomber and the Bloch "181" fighter. The Liore is a light twin-engined ship, about the size of the Martin and Douglas attack bombers. It is as good looking a fighting plane as one could see anywhere, and has a top speed in excess of 500 kilometers (312 miles) per hour, despite comparatively small engines.

The Bloch is powered with a single radial engine. It, too, is of exceptionally clean design and also exceeds 500 kilometers, probably by a good margin. Equipped with a retractable landing gear, and of all-metal design, it is an exceedingly wicked looking weapon.

For cleanness of design, the Potez "63" command fighter is outstanding. It is about the size of the Lockheed pursuit and also is powered with two engines. Very clean and fast, it is, unfortunately, very frail and probably would not stand up long under the terrific strain of actual combat. That condition, however, may be corrected. In any event, there are other types which are both sturdy and fast.

The officers to whom we talked say they do not know the exact strength of the combined German and Italian air forces, but they felt then that the democracies could match the axis group first-line plane for first-line plane. We had no means of checking their opinion, having no better sources of information on Italy and Germany than their own, but we were informed in London that Franco-British production capacity exceeds that of Germany and Italy, and still is increasing.

Whatever comes, France appears now to be ready for it. Completely manned and equipped military airdromes are located at strategic points in all the six districts of the country, ready by day or by night. Most of the fields are provided with bomb-proof hangars and barracks. We saw many of them, and ample indication of the closeness of war, while flying from Marseilles to Paris in one of Air France's tri-motored Dewoitine transports.

We passed over at least a dozen large military airdromes, and found that invariably the commercial airports also have their contingents of air force squadrons. Significantly, dozens of bombers and fighters were lined up on the tarmac, ready to take off, although there appeared to be storage space for 40 times their number. It looked to us then that they expected war from hour to hour and that they had made up their minds that the first report of a German bomber over French territory would be the signal for an assault on Berlin.

Both the man on the street and the officer sitting in on the councils in high places regard war as a matter of course, we finally decided, and it is a significant indication of the value France places on her air force that she is spending more than $500,000,000 on that arm alone this year, and that the already huge air ministry is being enlarged to four or five times its size a year or two ago.

As a matter of fact, the atmosphere of war so pervades the French capital that it even affected us and caused me, in particular, to receive considerable ribbing from our French friends, who seem to be pretty fatalistic about the whole thing. One night I was sitting in my hotel room, preparing notes for this article. Everything was quite peaceful and my work was progressing nicely, when suddenly the night air was split by the screaming of sirens, followed by a ragged series of muffled but extremely heavy detonations.

Air raid! I thought, trying to be calm and face the end bravely.

The sirens continued yowling and the thud of detonating "bombs" rattled the windows. Finally, when my ceiling failed to come down upon my head, I picked up the telephone and asked the concierge (very matter-of-factly, I thought) what was going on. He replied that it was a celebration at the Eiffel tower. I ordered a drink and went to bed.

Such is the effect of Paris in time of stress. It is obvious that France wants no war, but she is resigned to what she regards as the inevitable and is facing it with a degree of self-confidence and considerable more cheerfulness than was evident last September. Her spirit is better I believe, than that of the English, although Great Britain is even better off from the aeronautical standpoint. I could not help feeling, after spending a few days in London, with its anti-aircraft guns, barrage balloons and searchlights in every park, that sirens and explosions would have been received far less calmly by the British public than they were by the Parisians. END

AOPA News

(*Continued from page* 54)

with heat treated members?

Would it be a good idea for all of us pilots to know our aircraft more intimately?

Congress Did Well By Us

Four million for the pilot training program will give us approximately 10,000 pilots to train. That is plenty for a starter. If we do that job well and enlarge the whole aviation picture we may spearhead industrial progress. Don't think it will be easy to get this group trained safely and on schedule! It's a herculean task. Tempers will be shredded in CAA and elswhere before it is completed. But we can all make it easier by remembering that just one criterion is important—every move must be in the best interests of the game rather than the individual.

The Aircraft Owners and Pilots Association will make any sacrifice and cooperate with every effort on that basis.

We Are A Bit Proud

. . . of the response to the invitations to charter membership in AOPA. So many of the very finest leaders of American aviation have written, wired and joined AOPA purely on the faith they have in Mr. Ludington's leadership and on the program he has announced. Their faith will be justified. AOPA is moving steadily and quietly toward certain goals for miscellaneous aviation—promoting aviation, and not merely another organization. As one of the hired hands who has been around a bit I can already see a stimulation in the entire picture.

From Our Membership Office

Membership headquarters in Chicago has been busy digging out from under a deluge of applications. Among those who have recently affiliated are Eugene L. Vidal, former head of the old Bureau of Air Commerce and holder of Certificate of Competency No. 1; and Clarence M. Young who, incidentally, holds license No. 2. The first member affiliating with the AOPA holding a spherical balloon license is Raymond T. Vredenburgh (license No. 333). Richard C. duPont of glider fame, Ray Brown and Ruth Nichols have also been awarded their credentials recently.

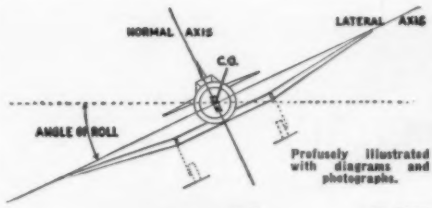
Several inquiries regarding glider pilots' eligibility have been received. In keeping with our strict policy of admitting only qualified pilots and plane owners, and upon the recommendation of Lewin B. Barringer, glider pilot membership is restricted to CAA certificated private or commercial glider pilots; or a "C" license issued by the F.A.I. through the NAA.

Interesting is the fact that over 60 doctors have registered with the AOPA. Charter membership is still open. Eligible pilots may receive information and membership applications by writing to the membership office, Transportation Building, Chicago, Illinois.

END

Discontinue Notices

ALL pilots are warned that, since August 15, the Civil Aeronautics Authority has discontinued the issuing of license expiration notices and that the responsibility for license renewals now rests solely with the individual. According to the announcement, the procedure for renewing certificates remains unchanged.



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• • •

What Authorities Say:

I have your new book. May I offer my congratulations on the excellent job you have done. E. A. LINK, Jr. (Inventor of the Link Trainer).

LT. VETTER

I like your book very much. No question but that it has what the student needs. Send me one hundred (100) copies immediately. RAY P. HYLAN (Hylan Flying Service).

Your system of headings in italics and then a short paragraph answering the question or discussing it makes it very interesting and easy reading. It seems to me that you have covered the subject very completely and it should serve to give anyone readily the general information and knowledge of aviation.

I feel sure that every pilot and person at all interested in aviation would benefit very much by reading your book. TED WELD (Vice-Pres., Piper Aircraft Corp.).

I greatly enjoyed the book entitled "Aeronautics Simplified" and while I have quite a formidable library on the subject of aviation, I can frankly say this is just about the most complete and satisfactory publication of its kind I have ever read. In fact, I am reading it over and over and endeavoring to master every detail of the book. It might be very well described as "Multum in parvo." W. H. FORSE (Nationally known sportsman pilot).

Facts such as these prove that you should have this invaluable book in home or office.

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Gliding

(*Continued from page 26*)

much as 250 feet—and learn to land safely each time.

When you've reached the stage where you can take off and land correctly in straight flight two things happen: you are introduced to 90 degree turns and the cowling is put on the ship. Of the two events the cowling arouses the strongest reaction.

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As soon as you can land within 100 feet of a given spot and do it every time you are ready to qualify for your B license. The requirements are one 360 turn to the left and one 360 turn to the right, landing within 100 feet of a given spot. When the instructor thinks you can do this and you believe yourself ready there isn't a thing to hold you back, for official N.A.A. observers will be available at all times to witness and certify flights.

Then out you go to the great sand dunes that stretch both north and south from the town. Against these dunes the prevailing winds blow almost constantly; here you'll be able to do some slope soaring. That's the stuff that gets you ready for your "C" or soaring license and it is the place where the real thrill of motorless flight is found. Sitting silently up above a ridge or playing around with a rising thermal, the feeling of being earthbound passes away for you are actually riding the wind.

That, then, is the training program at Frankfort. From the beginning it is shaped toward that single end—riding the wind. If at the end of the training period you have advanced sufficiently the school will give you an opportunity to qualify for the five hour duration leg of the Silver C—the top ranking soaring pilots the world over desire to obtain.

When you make that flight then—and not until then—will you know where the ultimate meaning of the word "flying" is found.

END

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U. S. Slipping

IN successful attempts to build up their own industries as reserves of air force strength by selling aircraft products abroad, Germany and Italy outsold the United States in 18 countries during 1938, according to John H. Jouett, president of the Aeronautical Chamber of Commerce of America, in a recent comprehensive survey of world aviation trade. Through liberal Government credits, subsidies, barter deals and official aviation missions, the axis powers led the United States in six Latin American countries, Mr. Jouett added.

"In 1938, the United States exported $68,209,050 worth of planes, engines and accessories," Mr. Jouett continued. "Germany was next in line with $27,183,501, proving the energy with which the Reich is trying to develop its aircraft production facilities by foreign sales. It was the first time in history that Germany outsold Great Britain, which ranked third in 1938 with a total of $26,501,340. Italy ranked fourth with $8,821,493, and France was fifth with $3,752,208. Combined sales of Germany and Italy, therefore, totaled $36,004,994 as compared to $30,253,548 for England and France. The four European powers, with a total of $66,258,542, almost equaled the $68,209,050 of the American industry.

"The German and Italian figures are particularly significant when compared to our trade in Latin America. The American industry exported to 20 countries south of the border; and that business alone, aggregating $12,518,232, or 18.3 per cent of the total American exports, provided a full year's employment for about 3,000 wage earners. Germany sold to 14 Latin American countries a total of $4,320,815, or 15.9 per cent of her export total. Italy's trade, while limited to three Latin American countries, was $3,047,644, or 34.5 per cent of her export total. The two axis powers took 37 per cent of the Latin American trade shared by the three nations.

"Germany sold $2,264,622 in Chile and Italy sold $1,221,951, as compared to only $64,331 worth of aviation equipment from the United States. In Peru, Italy sold $811,355 and Germany $63,453 as compared to $223,490 from the United States. Italy sold Paraguay $1,014,338 against $6,162 from the United States. Germany sold Uruguay $281,522 against $115,207 from the United States. Germany sold Ecuador $26,104 against $10,827 from the United States, and Salvador received $12,851 from Germany while buying $9,303 worth of equipment from Americans. In all other Latin American countries the United States led by wide margins, but Germany improved her position over former years by delivering $1,006,410 worth of equipment to Brazil against $1,946,947 from the United States, and $457,422 to Argentina as compared to $6,187,342 from the American industry.

"Germany's campaign to make her aeronautical exports account for increased employment and development of her aircraft industry at home bore fruit elsewhere in 1938. The Reich sold to Japan aviation equipment valued at $4,303,545, of which $1,194,358 went direct to Manchukuo. The German records also show shipments to the Union of South Africa valued at $1,734,109 while Italy is credited with $1,056,155 to Iraq. Germany also outsold the United States in Sweden, Switzerland, Bulgaria, Czechoslovakia, Yugoslavia, Belgium, Denmark, Portugal, Greece, Mozambique, Spain (where American sales were embargoed) and Hungary."

Potentate's Plane

AMONG recent purchasers of American aircraft was the Maharajah of Jaipur, India, sovereign ruler over nearly 2,500,000 people. The Maharajah has purchased a Lockheed "12" specially outfitted for his personal use.

Airy Chat

(Continued from page 8)

enthusiastically pointed out that that article was the most factually correct on the subject they had seen in any publication. They knew, because they had just returned from Spain where they had served in the very squadrons Mr. Hadesbeck had been using for targets!

* * *

DREW PEARSON and Robert S. Allen are, as you know, the hottest pair of columnists in Washington, D. C. Although they've done very little along aeronautical lines, we played a hunch and dropped them a note. Yes, they thought there might be a pretty good yarn available and that Colonel Lindbergh was a pretty good subject. Anyway, the team went to work in their own mysterious way. Things were pretty quiet and we'd been resigned to waiting a while when suddenly, smack on this issue's deadline, came "Why Lindbergh Came Home." Things hummed in our office, what with getting the manuscript to the printer and locating photographs. Reminded us of our chain-lightning newspaper days.

* * *

THE Aircraft Owners and Pilots Association and Wisconsin Civil Air Corps held a breakfast flight on August 13 at Curtiss-Reynolds airport near Chicago. When, at the allotted time for the planes' arrivals, the sky literally began to turn black there was little doubt that it was to be the biggest flight of its kind in the history of American aviation. When the dust had settled—literally—anyone still able to keep his head after the arrival of such a swarm could have counted 101 airplanes ranging from Cubs, Aeroncas and Taylorcrafts through Ryans, Monocoupes, Stinsons, Fairchilds, Wacos, a Howard and even two Douglas DC-3's sent by two airlines. They swarmed in from Illinois, Iowa, Indiana, Wisconsin and Michigan. Breakfast was served to 302 persons after which the visitors saw a movie in the airport's parachute loft. We can't get too enthusiastic about this type of activity and what it means to aviation.

* * *

STOPPED down at Wright Field the other day for the celebration of the Army's 30th anniversary of their purchase of the first military plane from the Wright brothers. Though we didn't quite know what to expect, inasmuch as Wright Field is the center of all Air Corps secrets, we were most pleasantly surprised by the fine job of public relations the Air Corpsmen did. The typical gruff military reticence had vanished and was replaced by courteous, considerate treatment that probably will do the Air Corps more good than all the propaganda they can turn out in five years. Incidentally, we got our first flight in a Boeing B-17 *Flying Fortress* during that visit. Our host was Lieut.-Col. Robert Olds, commanding officer of the Second Bombardment Group and the man who wrote the story of his and his squadron's flight to South America not long ago for POPULAR AVIATION. We flew in the cockpit with him. And, if our hair ever has stood on end, it was when we looked out the cockpit windows to find other B-17's—the rest of the squadron—almost sitting on our ship's wing tips and tail!

* * *

WHAT with Col. Roscoe Turner telling us all about air racing last month and Earl Ortman adding to the fire this month (page 27), we're all warmed up for the air racing season. Anyway, Cleveland's next on the calendar and we'll be on our way almost as soon as we finish typing these words.

* * *

See you there? M. K.

END

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FLYING BOAT 1 P.O.B. less motor $75. Cracked Lincoln $40. Pusher propeller for Aeronca motor E 107 A Ground trainer $25. Wanted outboard motor. Joe Calcagni, 2527 Hughes Avenue, Bronx, N. Y.

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WILL TRADE '34 Ford V-8 Phaeton with radio and heater, perfect condition, for two place ship. Preferably side by side. Must be eligible for license. All letters answered. Don McDonald, 835 East 7th St., Tucson, Ariz.

FOR SALE: Travelair 2000 OX5. Slightly damaged, license expires July 15, '39. $225. Suiter McCoy, Ottumwa, Iowa, Airport.

WILL SELL OR TRADE you my Ford A open Monoplane for cost of materials—flown only six hours. Does 90 top lands 35. Completed Jan. 1939. John G. Orr, 456 N. Cherry St., Galesburg, Ill.

SELL OR TRADE—Pietenpol 2 POLM Perfect shape, flying, write. C. Ritchey, Carrollton, Ill.

100 AIRPLANES, $50 up. Terms, trades. Located everywhere. Complete Directory, 25c, postpaid. Used Aircraft Directory, Athens, Ohio.

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AIRPLANES WANTED

WANTED—Model 7 Fleet with brakes, tail wheel and starter. Send photo of ship and state lowest cash price in first letter. Anthony Hanzlik, 33-05, 37 Avenue, Long Island City, N. Y.

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AIRCRAFT BATTERIES: 6-8 Volt, Brand New Exide, Willard, While they last $4.50. Aeronautical Trading Co., Floyd Bennett Airport, Brooklyn, New York.

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AIRCRAFT MATERIALS CLEARANCE—1015 steel tubing, W.S. steel tubing, misc. gauges, 9/32, 5/16, ⅜, 7/16, four cents per foot; ⅝, 1⅛, eight cents per foot; Kawneer 2812 streamline, 8 foot lengths, five cents per foot. Spruce rib stock, 7/32 x 7/32, 500 feet, $2.00. Plywood, 1/32 alder, 10 square feet, 50c; turnbuckles, 3c each. Heath Company, Benton Harbor, Mich.

WANTED—Used 35-60 HP engine, blueprints for small sport plane. Kreitzberg, Missoula, Montana.

WANTED: Leblond engine, landing gear, and struts for Rearwin Sportster. Oscar Sagli, Box 152, Cheyenne, Wyoming.

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PRIVATE PILOT—young mech. inclined also sales experience. Want job in aviation. Will travel. J. W. Carlyle, 3155 Los Feliz Blvd., Los Angeles, Calif.

WANTED: Millionaire to finance two year course Parks Air College. Guarantee every cent repaid. Box H, Popular Aviation, 608 S. Dearborn, Chicago.

SECRETARY-stenographer, Solo Pilot, car, photographer, Exchange services for flying instruction, salary; within commuting distance New York City. Martha Gallantor, 1402 Clay Avenue, New York City.

WANTED—Job as apprentice Mechanic—Experienced. Name terms. M. Mostovyk, 707 Fairmount Ave., Philadelphia, Pa.

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FOR SALE—Converted Model A Ford Motor complete with propeller. Leo Scherer, Pompton Lakes, New Jersey.

PATENTS

PATENTS: Low cost. Book and advice free. L. F. Randolph, Dept. 372, Washington, D. C.

I Was a Hero

(*Continued from page 65*)

try, I went on down to Hollywood and helped make the movie. This still wasn't what I really wanted; it wasn't a career in aviation, so I kept my eyes peeled. About a year later, after turning down some much more spectacular jobs, I had a chance at just a plain everyday berth with Maddux Air Lines, flying up and down the coast. I figured this would be there when the rest of the stuff was gone, so I took it. Later, Maddux merged with Western Air and TAT and became TWA. I went along. I flew routes on both sides of the continent and, in 1935, I went to Kansas City as a flight dispatcher and test pilot. In October, 1937, I went to Burbank as a dispatcher and, a year later, came to San Francisco as District Traffic Manager. Emory Bronte today is an official of a big oil company here.

Well, I guess that makes me an "executive." Anyhow, I do enough flying to keep all my ratings—and also to keep my dispatcher's license. I'm married and have a boy 8½. His name is Ernest Bronte Smith and when he grows up he can be a flyer if he wants to. But I don't think he'll ever make the kind of a flight I did in the *City of Oakland;* as they say, "them days are gone forever."

Would I do it over again? Of course I would! That is, under the conditions of 1927. But under the conditions of today—no. There isn't any point to it any more. You don't need spectacular flights with inadequate ships to prove the value of aviation. It's all proved. The new routes are all charted very scientifically, in survey ships packed with instruments.

As for how it feels to have been what you call a "hero", I've already spoken my piece. People make a lot of noise, but they're mostly sincere and they don't let

you down. They don't forget you. I still get letters about my flight and I appreciate them. A couple of years ago the Russian aviators flew across the North Pole and landed in California. It was a great flight and they had their own share of the crowd's roar. But do you know one of the first things they did after they caught their breath? They came to call on me at Burbank! They couldn't speak any English and I didn't know a word of Russian, but we got along fine. The point is, after ten years, they remembered me and the *City of Oakland*.

I don't see why I should have any regrets.

END

I Learned About . . .

(*Continued from page* 48)

dance as we could—when the ship swung away again. We yelled twice as loudly as before, this time in terrible desperation. The plane had settled until it was level with the surface. We stood on the top wing and felt the water lap around our ankles.

(The ship came back or I wouldn't be writing this today. The captain told us later that he had put the helm over so hard, when his lookout sighted us, that he had burned out a fuse in the electrical steering apparatus. The ship swung back on its course while he sent two men aft to steer by hand.)

By the time the ship came within hailing distance we were up to our knees in water. A figure stepped to the rail and raised a huge megaphone:

"Are you in trouble?" came the hail.

Were we in trouble! Were we in . . .

We just didn't have any answer. The megaphone shouter steered the lifeboat that the *S. S. Hamlin F. McCormick's* skipper ordered over the side to our rescue. I was so glad to see him that I could have kissed his shiny bald head, despite his question. Captain Charles E. Larsen went his mate one better. He moved his ship alongside, rigged a boom and hoisted the old Standard aboard. Not only that, when we reached port he arranged to have another ship of his line carry the plane back to San Pedro and then had it trucked out to Clover Field for me!

Two days after our rescue we landed at San Francisco, 200 miles farther from Los Angeles than we had started. Word of our mishap had been radioed ashore and newspapermen swarmed aboard as soon as we entered the Golden Gate. Over and over again I had to explain my mistake, for my mistake it was.

I simply tried to do a job of flying that was over my head—and failed. You don't forget a lesson like that.

END

Thousand Headaches

(*Continued from page* 36)

insulted by the offer of a tip and hurt when he spends valuable time giving extra service without the reward of a "thanks".

His is a job that will never grow dull. And although he is frequently the recipient of impolite abuse from passengers and although his job is little glory and not much money, you will seldom find a passenger agent who is unhappy. For once in a great while a particularly appreciative passenger will realize a passenger agent has gone out of his way to make a trip a little more pleasant—and say so.

That is better payment than gold.

END

New Amphibian

DEVELOPMENT work has been started on a new low-priced amphibian that is expected to sell in the vicinity of $2,500, according to an announcement by Ray Applegate, the ship's designer. Applegate, formerly with an aircraft engine concern, describes his design as having a 75 h.p. pusher engine, an estimated cruising speed of 90 m.p.h. and a top speed of 102 m.p.h. All figures given, however, are estimated and not actual; the prototype of the Applegate amphibian has not yet passed CAA tests.

The new ship will have an electrically-welded, non-corrosive hull, stainless steel tail surfaces, retractable rubber wing-tip floats and a special disappearing hood.

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